AMENDMENT TO THE CLAIMS

Claims: Cancel claims of record (31 through 111) and substitute new claims 112 to 192 as follows:

112. (New) A computer-implemented business method for actively and declaratively managing, implementing, and executing a first dynamic process incorporating a dynamic pattern of operations driven by real-world conditions causing at least a first behavioral pattern to emerge, said computer-implemented business method comprising:

(a) declaring and stating an Objective of said first dynamic process as a set of measurable Goals and Constraints;

(b) declaring and stating at least one Objective Rule Set having a plurality of Rules, said Rules in the said Objective Rule Set being defined to accomplish at least a part of said Objective by the combination of at least one subset thereof:
> wherein the Rules in said Objective Rule Set may act in any order subject to the limitation that, for any specific Rule in said Objective Rule Set, that specific Rule's Condition and applicable Constraints must be satisfied before that specific Rule's Action may occur;

(c) delegating to at least one specific set of Actors consisting of at least one Actor:
> at least a first subordinate Objective, subordinate to the Objective, stating the first subordinate Objective as a subset of subordinate, measurable Goals and subordinate Constraints;
> a set of Rules for accomplishing said first subordinate Objective;
> authority via at least one Rule stating authority for attaining the subordinate, measurable Goals of said first subordinate Objective;
> accountability via at least one Rule stating accountability for attaining the subordinate, measurable Goals of said first subordinate Objective; and,

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responsibility via at least one Rule stating responsibility for attaining the subordinate, measurable Goals of said first subordinate Objective subject to the Constraints and subordinate Constraints;

(d) determining the satisfaction of any Rule's Condition and triggering the occurrence of said Rule's Action;

    wherein said Rule's Condition incorporates at least one Measurable Value from at least one member of a set of sources; and,

    said set of sources comprise a source internal to said dynamic process, a source external to said dynamic process, and a source in the real world;

(e) modifying at least one Element of said dynamic process through the Action of at least a Rule whose Condition is triggered by at least one input from an event in the real world;

(f) defining any Actor as being at least one member of an Actor set comprising human agent, semi-automated agent, and automated agent;

(g) defining any Element as being one member of an Element set comprising a Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable Value, and Delegation;

(h) defining each Rule so as to comprise a Condition that is satisfied when it evaluates to a specified and predetermined value and an Action that is triggered when the Condition is satisfied;

(i) determining the triggered Action of at least a first Rule and its relative order with respect to a second Rule's Action, and therefore the behavior of the dynamic process, at least partially by logical inference from Conditions and Constraints rather than said relative order being predetermined and required by human mandate;

(j) executing automatically at least a subset of the dynamic pattern of operations, defining said subset of the dynamic pattern of operations as comprising a plurality of operations, each operation therein being temporally contiguous to at least one other operation in said subset of the dynamic pattern of operations; and,

(k) specifying a plurality of Elements and implementing each of the steps of declaring and stating, delegating, determining, and modifying, through a declarative and therefore non-procedural representation.

113. (New) A method as in Claim 112 further comprising iterating at least one of the steps of declaring and stating, delegating, determining, and modifying.

114. (New) A method as in Claim 112, further comprising the step of redeclaring and restating at least one Action of at least one Rule as a second dynamic process.

115. (New) A method as in Claim 112 wherein the dynamic process represents a business's operational flow, said operational flow being that business's fundamental business activity of producing goods and services.

116. (New) A method as in Claim 112 further comprising adding at least one new Element to the dynamic process in response to at least one input.

117. (New) A method as in Claim 112 further comprising the step of using the measurable Goals and Measurable Values to enable assessment of any member of a set of assessments, that set of assessments comprising risk of error, minimum contribution of

any Rule to the Goal, maximum contribution of any Rule to the Goal, risk of deviation from the Goal due to the Action of any Rule, performance of at least one Actor, and relative efficiencies among any two Actors.

118. (New) A method as in Claim 112 further comprising using the deviation of Measurable Values from measurable Goals for at least one member of a set comprising accounting control, regulatory control, and reporting without first requiring that the dynamic process terminate.

119. (New) A method as in Claim 112 wherein said method forms a business autopilot, which, once initiated, requires no human intervention to manage successful execution of said subset of the dynamic pattern of operations even when Actions and operations are implemented by human Actors.

120. (New) A method as in Claim 112, further comprising:

    including a set of Constraints consisting of at least one Constraint;

    including a first Rule Set consisting of at least a first Contained Rule;

    including a second Rule Set consisting of at least a second Contained Rule; and,

    including a set of ordering Rules consisting of at least one ordering Rule;

wherein the relative order by which each first Contained Rule in the first Rule Set and at least a second Contained Rule in the second Rule Set are satisfied is determined according to at least one member of a set comprising the set of Constraints, implicit Rule precedence making the Action of each Contained Rule in the first Rule Set satisfy a Condition of the second Contained Rule, the set of Constraints, and the set of ordering Rules.

121. (New) A method as in Claim 112, further comprising declaring and stating at least a first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the first Rule Set, and wherein the second Rule Set inherits from the first Rule Set at least one Condition of a Rule in the first Rule Set as a Constraint on the second Rule Set and at least one Action of a Rule in the first Rule Set as a Goal of the second Rule Set.

122. (New) A method as in Claim 112, further comprising declaring and stating at least a first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the first Rule Set, and wherein at least one change in Constraints by Action of at least one Rule of the second Rule Set is passed to the first Rule Set.

123. (New) A method as in Claim 112, wherein said declarative and therefore non-procedural representation is at least one member of a representation set comprising symbolic logic and declarative computer language.

124. (New) A method as in Claim 112, wherein for at least one Rule:

the Condition of said Rule detects a difference between at least one Element of said dynamic process and a Measurable Value from at least one input, and the Action of said Rule has an affect on at least that one Element of said first dynamic process by modifying that one Element to do at least one member of a response set comprising accommodate the Measurable Value, and adjust performance of said dynamic process as indicated by the Measurable Value.

125. (New) A method as in Claim 112 further comprising analyzing the efficiency of a business operation by measuring the deviation of Measurable Values from measurable Goals.

126. (New) A method as in Claim 112 further comprising :

incorporating a set of resolving Constraints comprising at least one member of a

resolving set comprising a resolving Constraint and a resolving Rule; and,

incorporating at least one ambiguous Rule;

wherein said set of resolving Constraints determines whether the ambiguous Rule's

Action will be triggered when the evaluation of the ambiguous Rule's Condition is not a

value that has been otherwise determined to cause the ambiguous Rule's action to trigger.

127. (New) A method as in Claim 112 wherein, in the step of delegating, at least one

member of what is delegated to one specific Actor is a consequence of the Rules,

Constraints, and measurements associated with an Actor.

128. (New) A method as in Claim 112 wherein at least one Element maintains

consistency among any combination of authority to act, responsibility, response to

operational failure, and accountability.

129. (New) A method as in Claim 112 wherein at least one Rule makes explicit why

Actions are undertaken and what is to be achieved.

130. (New) A method as in Claim 112 further comprising replacing a first Unrefined

Rule by a set of refinement Rules that include at least the Action of the first Unrefined

Rule without the set of refinement Rules including the first Unrefined Rule.

131. (New) A method as in Claim 130 further comprising

incorporating a first risk of error associated with the first Unrefined Rule;

incorporating a second risk of error associated with a second Refinement Rule

belonging to the set of refinement Rules;

wherein the second Refinement Rule has the least risk of error of any Refinement Rule in

the set of refinement Rules; and wherein the second risk of error is not greater than the

first risk of error.

132. (New) A method as in Claim 112 wherein the step of declaring and stating at least

one Objective Rule Set comprises stating at least a first Objective Rule Set and a second

Objective Rule Set, wherein the first Objective Rule Set operates at a first level of the

dynamic process and the second Objective Rule Set operates at a second level of the

dynamic process.

133. (New) A method as in Claim 132, wherein said first and second levels are indistinct

and said first Objective Rule Set and said second Objective Rule Set form a peer to peer

organization.

134. (New) A method as in Claim 132, wherein said first and second levels are distinct

and said first Objective Rule Set and said second Objective Rule Set form a hierarchical

organization.

135. (New) A method as in Claim 112, further comprising declaring and stating at least a

first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the

first Rule Set, and wherein the first Rule Set further receives, from the second Rule Set,

the result of an Action by a Rule of the second Rule Set as satisfaction of at least one

Condition of a Rule of the first Rule Set.

136. (New) A method as in Claim 135, wherein the first Rule Set further comprises at least a superior Objective and wherein the Action of the second Rule Set conveys information to the first Rule Set sufficient for the first Rule Set to alter at least the superior Objective when the superior Objective does not conform to a Measurable Value from the real world.

137. (New) A method as in Claim 112, further comprising:

including at least a second Rule Set comprising a set of Rules that are connected and have no Rule for which both its Condition is not satisfied by some combination of Actions and events, and its Action does not eventually in combination with the Actions of other Rules in the set satisfy the Conditions of at least one Rule;

including at least a first Satisfied Rule in said second Rule Set whose Condition has been satisfied at least once;

and,

further including a set of pairs comprising an identification of at least one Satisfied Rule and a time said Satisfied Rule was satisfied, said set of pairs being partially ordered and constituting a first subordinate process.

138. (New) A method as in Claim 137 wherein the second Rule Set comprises the entire set of satisfied Rules of the first dynamic process and no explicit ordering of the Rules in the second Rule Set is provided in defining said first dynamic process.

139. (New) A method as in Claim 112 wherein said set of Rules includes at least one anticipatory Rule, the satisfaction of the Condition portion of said anticipatory Rule being merely a possibility and neither a prediction nor a mandate, when said anticipatory Rule is initially stated.

140. (New) A method as in Claim 139 wherein said Condition of said anticipatory Rule incorporates at least one conjunct which, at the time of creation of the Rule, incorporates a Measurable Value that is contrary to the known and projected state of the real world.

141. (New) A method as in Claim 112 further comprising:
storing said declarative and therefore non-procedural representation in a static and stable form; and,
preserving human knowledge of said dynamic process.

142. (New) A method as in Claim 141 further comprising the steps of
organizing in a first business entity said declarative and therefore non-procedural representation of said dynamic process for conveyance to a second business entity, and,
conveying said declarative and therefore non-procedural representation from the first business entity to the second business entity.

143. (New) A method as in Claim 141 wherein said declarative and therefore non-procedural representation of said dynamic process stores knowledge of at least one member of a set comprising organizational management, at least one model of business organization, at least one operational process, and at least one strategic process.

144. (New) A method as in Claim 141 further comprising the steps of:
retrieving at least a portion of said declarative and therefore non-procedural representation, and,
instantiating said portion of said declarative and therefore non-procedural representation as a second dynamic process in a business.

145. (New) A method as in Claim 112 wherein the step of delegating to at least one specific Actor further comprises:

a first Actor at a first level stating a plurality of business Rules comprising possible Conditions, each Condition comprising at least one member of a set comprising factual circumstance, market situation, business event, and Measurable Value, and joined with at least one corresponding desired Action matching a first measurable Goal;

a second Actor at a second level identifying a Goal-achieving set of business Rules enabling said first measurable Goal to be attained;

and;

said second Actor communicating at least a first result of the Goal-achieving set of Rules to said first Actor.

146. (New) A method as in Claim 145 wherein said plurality of business Rules are responsive to a plurality of events, and wherein the actual operation of the plurality of business Rules are combined to form a business process independent of any pre-existing definition of the business process.

147. (New) A method as in Claim 145 wherein said measurable Goal is expressed as at least one Goal Rule comprising a Goal Condition which identifies said measurable Goal and a Goal Action which specifies any combination of the members of a measure set consisting of a measure of success, a measurement Constraint, and a measure of failure.

148. (New) A method as in Claim 145 wherein the first Actor further:

identifies the maximum acceptable risk associated with each Risky Rule in a first Risky Rule Set at the second level;

determines the risk associated with each Risky Rule; and,

for each Risky Rule in the first Risky Rule Set with risk that is not below the maximum acceptable risk associated with said Risky Rule, further refines Actions of each such Risky Rule by delegating its Actions as a Goal to a third Rule Set, and the third Rule Set is at a third level.

149. (New) A method as in Claim 145 wherein the step of communicating further comprises stating at least one Rule having at least one Condition responsive to said desired Action and having an Action that performs said step of communicating.

150. (New) A method as in Claim 145 wherein said first result is a qualitative measure of at least one member of a set of measurable properties comprising performance and Goal completion.

151. (New). A method as in Claim 145 wherein said first Actor effects Delegation to at least one subordinate Actor any combination of any number of the members of a Delegation set consisting of responsibility, accountability, and authority that belong to the first Actor.

152. (New) A method as in Claim 151 wherein said first Actor further effects Delegation by a Delegation Rule comprising at least one Delegation Condition which tests the appropriateness of achieving said desired Action and at least one Action which identifies at least one Actor as recipient of said Delegation.

153. (New) A method as in Claim 152 wherein the Delegation Rule delegates authority by at least one member of a set comprising establishing at least one Rule Set, modifying at least one Rule Set, and deleting at least one Rule Set.

154. (New) A method as in Claim 151 wherein the first Actor delegates authority by at least one member of a set comprising establishing at least one Rule Set, modifying at least one Rule Set, and deleting at least one Rule Set.

155. (New) A method as in Claim 151 wherein said Delegation of accountability is accomplished by enabling at least one member of a set, comprising said second Actor and said second Rule, to alter at least one member of a set comprising measurement of predefined success and measurement process.

156. (New) A method as in Claim 145 further comprising identifying a second Actor according to a Goal stated as a set of requirements Rules and a set of requirements Constraints, and according to measurements stated as a set of capabilities Rules.

157. (New) A method as in Claim 156, wherein each requirement Rule in said set of requirements Rules comprises both:

      at least one requirements Condition identifying at least one member of a set comprising the desired Action and at least one capability required to accomplish said desired Action; and,

      at least one requirements Action identifying at least one member of a set comprising at least one capability of said second Actor and said desired Action.

158. (New) A method as in Claim 156, wherein each capability Rule in said set of capabilities Rules consists of at least one member of a set comprising:

      at least one capabilities Condition identifying at least one Actor and at least one capabilities Action identifying at least one capability of said Actor; and,

at least one capabilities Condition identifying at least one capability, and at least one capabilities Action identifying at least one Actor having said capability.

159. (New) A method as in Claim 156, further comprising a step of matching said second Actor with said desired Goal by at least one criteria for comparing at least one requirements Rule and at least one capabilities Rule.

160. (New) A method as in Claim 159 wherein said criteria is established using at least one member of a match set comprising a best fit match algorithm, a fuzzy match algorithm, an approximate match algorithm, and an exact match algorithm.

161. (New) A method as in Claim 112 wherein the step of modifying at least one Element through the Action of at least a Rule whose Condition is triggered by at least one input from at least one real world event, further comprises:

defining a first adaptation process comprising at least one adaptation Rule;

constructing the adaptation Rule from a Third Rule and requiring in the adaptation Rule's Action at least one member of a set of Actions comprising Element creation, self-modification, feedback, contradiction resolution, conflict resolution, correction for failure, and decision making, each of which is not already any previously existing Rule's Action;

satisfying the Condition of the adaptation Rule through an event; and,

affecting at least one Element through the Action of the adaptation Rule.

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162. (New) A method as in Claim 161 wherein said first adaptation process is independent of any external agent.

163. (New) A method as in Claim 161 further comprising monitoring performance by and against specific metrics;

> wherein the Condition of the adaptive Rule is satisfied by performance deviations from the specific metrics; and the Action of the adaptive Rule is representative of at least one member of a set comprising business events, business measures, business decisions, business Rules, and business processes.

164. (New) A method as in Claim 161 further comprising:

> modifying, through the Action of at least one adaptation Rule, at least a first Changed Rule instantiated at a first level;
> effectively modifying through the first Changed Rule instantiated at a first level at least a first Goal of the first level; and
> permitting but not requiring intervention from a higher level.

165. (New) A method as in Claim 161 further comprising:

> continuously monitoring for at least one occurrence of the at least one real world event; and,
> continuously modifying the Elements of the dynamic process, in response to the occurrence of the at least one real world event.

166. (New) A method as in Claim 161 further comprising:

> incorporating at least one member of a set of dynamic processes comprising creation, deletion, modification, and correction of both Objectives and Elements;

linking the adaptation process to at least one member of the set of dynamic processes; and,

modifying the Objectives and Elements by the adaptation process according to at least one member of a set comprising Conditions and Constraints.

167. (New) A method as in Claim 161 wherein the step of modifying at least one Element comprises:

detecting a contradiction;

changing at least one Rule Set, further comprising:

identifying at least a first and second conflicting Rule; and,

resolving the contradiction by at least one member of a set comprising adding a new Constraint, altering a existing Constraint, adding a new Rule, altering at least one of the first and second conflicting Rules, and eliminating at least one of the first and second conflicting Rules; and,

logically differentiating the Actions of the first and second conflicting Rules.

168. (New) A method as in Claim 161 further comprising reducing at least one operational latency in the dynamic process through the Action of the adaptation Rule.

169. (New) A method as in Claim 161 wherein the adaptation Rule's Condition is satisfied when a first contradiction occurs, and the adaptation Rule's Action modifies at least one Element.

170. (New) A method as in Claim 169 wherein the first contradiction comprises at least first and second logically-conflicting Elements, and the adaptation Rule's Action selects one of the conflicting Elements through at least one member of a set of selection

techniques comprising random selection, deterministic selection, and arbitrary selection, and modifies the selected Element.

171. (New) A method as in Claim 170 wherein the modification of the selected Element prevents simultaneous application of the first and second logically-conflicting Elements.

172. (New) A method as in Claim 169 wherein the first contradiction comprises at least first and second logically-conflicting Elements, and the adaptation Rule's Action alters at least one of the first and second logically-conflicting Elements and creates a differentiation between the first conflicting Rule's Condition and the second conflicting Rule's Condition, said differentiation preventing the first conflicting Rule's Condition and the second conflicting Rule's Condition from being satisfied by the same set of measurable inputs and Elements.

173. (New) A method as in Claim 172 wherein the adaptation Rule's Action alters at least one of the first and second logically-conflicting Elements, modifies the first logically-conflicting Element to include a Constraint not present in the second logically-conflicting Element, and prevents the possibility of the first and second logically-conflicting Elements from simultaneously occurring.

174. (New) A method as in Claim 161 wherein the step of constructing the adaptation Rule further comprises:
       stating the adaptation Rule's Condition to be satisfied when a first failure occurs; and,
       stating the adaptation Rule's Action to both incorporate modification of at least one Element and effect a correction for the first failure.

175. (New) A method as in Claim 174 wherein the first failure comprises not attaining a first Goal and the modification of at least one Element enables the first Goal to be attained by correcting at least one member of a set comprising at least one cause of the first failure and at least one effect of the first failure.

176. (New) A method as in Claim 174 wherein the modification of at least one Element includes at least one member of a set of steps comprising creating, modifying, and deleting a second adaptation Rule.

177. (New) A method as in Claim 174 wherein the first failure comprises not detecting a Measurable Value and the modification of at least one Element comprises at least one member of a set comprising creating the Element, modifying the Element, and deleting the Element.

178. (New) A method as in Claim 174, wherein a second failure comprises not attaining a second Goal and the modification of at least one Element includes the step of redeclaring and restating at least one Action of at least one Rule as a second dynamic process.

179. (New) A method as in Claim 174, wherein the first failure comprises not attaining a first Goal and the modification of at least one Element enables said first Goal to be attained by correcting at least one member of a failure set comprising at least a first cause of the first failure and at least a first effect of the first failure.

180. (New) A method as in Claim 174 wherein the adaptation Rule's Action modifies at least a member Rule of the Objective Rule Set and, when the member Rule's Condition is

satisfied, the member Rule's Action modifies, without human intervention, at least a first member of the set of measurable Goals.

181. (New) A method as in Claim 174 wherein the adaptation Rule's Action modifies at least a first Adaptable Rule of a set of Rules and, when the first Adaptable Rule's Condition is satisfied, the first Adaptable Rule's Action modifies, without human intervention and without modification of any Rule of the Objective Rule Set, at least a first member of a set comprising subordinate Goals and measurable Goals.

182. (New) A method as in Claim 174, wherein the step of declaring and stating at least one Objective Rule Set further comprises:

 stating at least a first Objective Rule Set and a second Objective Rule Set, wherein the first Objective Rule Set operates at a first level of the dynamic process and the second Objective Rule Set operates at a second level of the dynamic process;

 and wherein the adaptation Rule's Condition effectively defines the need for a closed loop effect in said first level and the adaptation Rule's Action changes at least one Element in said second level.

183. (New) A method as in Claim 174, wherein the step of modifying at least one Element comprises modifying at least one member of a set comprising Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable Value, and Delegation.

184. (New) A method as in Claim 174 wherein the step of declaring and stating at least one Objective Rule Set comprises stating at least a first Objective Rule Set and a second Objective Rule Set:

wherein the first Objective Rule Set operates at a first level of the dynamic

process and the second Objective Rule Set operates at a second level of the

dynamic process; and,

wherein a first Goal is associated with the first level and a second Goal is

associated with the second level; and the first Goal and the second Goal overlap

by having a subgoal in common.

185. (New) A method as in Claim 184 further comprising modifying the overlap to avoid

at least one member of a set comprising confrontation problems and race-condition

problems.

186. (New) A method as in Claim 112, wherein the step of declaring and stating at least

one Objective Rule Set comprises stating at least a first Objective Rule Set and a second

Objective Rule Set, wherein the first Objective Rule Set operates at a first level of the

dynamic process and the second Objective Rule Set operates at a second level of the

dynamic process, and further comprising an organizing Rule comprising:

> an organizing Condition; and

> an organizing Action;

and the organizing Condition is satisfied by the Condition of at least one Rule in said first

Objective Rule Set and the organizing Action comprises at least the second Objective

Rule Set.

187. (New) A method as in Claim 186 wherein said organizing Action delegates at least

one member of the set comprising a Rule Set, authority, accountability, and

responsibility, and said organizing Rule creates a hierarchical Delegation.

188. (New) A method as in Claim 112 wherein the step of declaring and stating at least one Objective Rule Set further comprises stating at least a first Objective Rule Set and a second Objective Rule Set, wherein the first Objective Rule Set operates at a first level of the dynamic process and the second Objective Rule Set operates at a second level of the dynamic process, and wherein the response to at least one Action of at least one Rule in the first Objective Rule Set becomes at least one Condition of at least one Rule in the second Objective Rule Set.

189. (New) A method as in Claim 188 wherein the first level and the second level are identical, and at least one Rule in the first Rule Set receives at least one response of at least one Rule in the second Rule Set as its Condition.

190. (New) A method as in Claim 141 further comprising:
    analyzing the business operations represented in said declarative and therefore non-procedural representation; and,
    refining and tuning at least one member of a set comprising Decision, Business Rule, and Business Process.

191. (New) A computer-implemented business method for actively and declaratively managing, implementing, and executing a first dynamic process incorporating a dynamic pattern of operations driven by real-world conditions, through which at least a first behavioral pattern emerges, comprising:
    specifying a set of at least two ordered Rules, wherein the Action of a first Rule triggers the Condition of a second Rule, and all Rules in the set form a partially ordered set wherein Actions of preceding Rules trigger Conditions of subsequent Rules;
    wherein said dynamic process is the set of possible Conditions and Actions of said partially ordered set of Rules.

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192. (New) An apparatus for actively and declaratively managing, implementing, and executing a first dynamic process incorporating a dynamic pattern of operations driven by real-world Conditions, through which at least a first behavioral pattern emerges, comprising:

static memory containing

a set of measurable Goals and Constraints of said first dynamic process;

at least one Rule Set having a plurality of Rules:

wherein the Rules in said Rule Set may act in any order subject to the limitation that, for any specific Rule in said Rule Set, that specific Rule's Condition and applicable Constraints must be satisfied before that specific Rule's Action may occur;

a declarative and therefore non-procedural representation of each Element, and of the steps of declaring, stating, delegating, determining, and modifying;

means for accepting at least one input from the real world, said input comprising a Measurable Value;

means for comparing any input against the Condition of all Elements contained in the static memory;

means for delegating to at least one specific set of Actors consisting of at least one Actor:

at least a first subordinate Objective, subordinate to the Objective, stating the first subordinate Objective as a subset of subordinate, measurable Goals and subordinate Constraints;

a set of Rules for accomplishing said first subordinate Objective;

authority via at least one Rule stating authority for attaining the subordinate, measurable Goals of said first subordinate Objective;

accountability via at least one Rule stating accountability for attaining the subordinate, measurable Goals of said first subordinate Objective; and, responsibility via at least one Rule stating responsibility for attaining the subordinate, measurable Goals of said first subordinate Objective subject to the Constraints and subordinate Constraints;

means for determining the satisfaction of any Rule's Condition and subsequently triggering the occurrence of said Rule's Action wherein said Rule's Condition incorporates at least one Measurable Value from at least one member of a set of sources and said set of sources comprise a source internal to said dynamic process, a source external to said dynamic process, and a source in the real world;

means for modifying at least one Element through the Action of at least a Rule whose Condition is triggered by at least one input from an event in the real world;

means for executing automatically at least a subset of the dynamic pattern of operations, defining said subset of the dynamic pattern of operations as comprising a plurality of operations, each operation therein being temporally contiguous to at least one other operation in said subset of the dynamic pattern of operations; and,

means for specifying a plurality of Elements and implementing each of the steps of declaring and stating, delegating, determining, and modifying, through a declarative and therefore non-procedural representation;
and,

means for iterating through the steps of declaring, stating, delegating, determining, and modifying.

RESPONSE TO CLAIM REJECTIONS – General

By the above amendment, applicant has replaced claims 31 through 111, with claims 112 through 142, the new claims being specifically written to define the invention more particularly and distinctly so as to overcome the technical rejections raised by the Final Office Action and to define the invention patentably over the prior art.

Claims Rejections Under 35 USC §101

The last Office Action rejected all claims 31-110 as directed to non-statutory subject matter. As these claims have been withdrawn, and as the new claims are specifically directed to a computer-implemented method, this grounds for rejection has been removed.

Applicant also humbly requests that specific notice be taken of the affidavit of the expert first referenced by the PTO, Professor Hossein Bidgoli, who has declared of Applicant's invention:

> "Those with ordinary skill as described above, upon reading the inventor's application, would appreciate the invention's usefulness. Its advantages were clearly stated."

As the invention as currently claimed both advances the technological arts and produces a useful, concrete, and tangible result, the Applicant believes this objection no longer applies to the new claims.

Claims Rejections Under 35 USC §102

The Rejection Of Claim 31 On Tinnirello Is Overcome By New Claim 112

The last Office Action rejected independent claim 31 on Tinnirello. Claim 31 has been replaced by new Claim 112 to define patentably Applicant's invention over this reference. Applicant requests reconsideration of this rejection, if considered as applying to Claim 112, for the following reasons:

1) The novel physical features of Claim 112 <u>produce new, superior, unsuggested, and unexpected results</u> and hence are unobvious and patentable over this reference.

2) Up to now the problem of a declarative method for business management as solved by the invention was <u>assumed insoluble</u> by those skilled in the art.

3) Elements in the prior-art have been omitted, and by the <u>omission of Elements</u> the prior-art version is thus made simpler without loss of capability.

4) Up to now the <u>advantages of the invention were unappreciated</u> by those skilled in the art.

5) If the invention were in fact obvious, because of its advantages, those skilled in the art would surely have implemented it by now, yet the invention <u>lacks implementation</u> as of Applicant's filing date.

6) The <u>reference (Tinnirello) is misunderstood</u> in that it does not teach what the Office Action relies upon it as supposedly teaching.

7) The invention is <u>contrary to the teachings of the prior art</u>, going against the grain of what the prior art teaches.

8) The Office Action has made a <u>strained interpretation</u> of the reference (Tinnirello) that could be made only by hindsight in light of Applicant's invention.

9) The invention utilizes a <u>new principle of operation</u> and Applicant has blazed a trail, rather than followed one.

10) Applicant's invention <u>solves a different problem</u> than Tinnirello, and such different problem is cited in the claims. *In re Wright*, 6 USPQ 2d 1959 (1988).

11) The reference (Tinnirello) is from a very different field than that of the invention, and so is "<u>nonanalogous art</u>."

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The Reference And Differences Of The Present Invention Thereover

Prior to discussing the claims and the above twelve (12) points, Applicant will first discuss the references and the general novelty of the present invention and its unobviousness over the references.

Tinnirello teaches the art of project management and discloses software implementations of the project management arts and available as products. As noted on page 3, "these products assume a knowledge of project management that many technical managers do not have" and that "without an understanding of the basic concepts of project management, managers may find the software is sometimes confusing and hard to use." Tinnirello teaches that projects are managed by following seven basic steps:

- break the project down into measurable tasks
- determine the inter-task dependencies
- assign lengths to each task
- assign resources (i.e., staff and equipment) to each task
- refine the plan
- communicate, revise, and update the project status regularly. perform a post-implementation review.

Tinnirello teaches (page 4) that "the first step is to break the projects down into a series to tasks and organize them into a hierarchy" but provides no method of doing so.

Tinnirello teaches (page 4-5) that inter-task relationships need to be established as a part of project <u>planning</u> (i.e., in advance of starting the project) and that there are three types of inter-task dependencies: finish-start in which the predecessor task must finish before the successor task can start, start-start in which the predecessor task must start before the successor task can start, and finish-finish in which the predecessor task must finish before the successor task can finish. Nothing regarding inter-task dependencies more specific than this qualitative and non-automatable classification is taught by Tinnirello. Tinnirello teaches (page 5) that the lengths (i.e., durations) of tasks should be estimated based on

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either the amount of elapsed time (i.e., for time-constrained tasks) or the amount of work (i.e., for the resource time in resource-constrained tasks). A third way to estimate time is to use standard metrics.

Tinnirello teaches (page 5-6) that one or two employees should be "picked" for each task that is resource-constrained and that resources need to be "leveled" either by adjusting the task schedule or adjusting the resource assignments. Tinnirello notes that project management software generally adjusts the schedule to increase the amount of time it takes to finish the project.

Tinnirello teaches (page 6) that refining the project plan involves adjusting lead times, adjusting lag times, scheduling ASAP, scheduling ALAP, and establishing baselines.

Tinnirello teaches (page 7-9) that "the only way to keep projects on time and on budget, and to better plan the next project, is to communicate the plan, revise the plan, and track the actual progress of the tasks in the plan." Tinnirello discloses using PERT charts, critical path, slack time, Gantt charts, monitoring (of dates, hours, and costs), and time sheets for this purpose.

Tinnirello teaches (page 9) two techniques for post-implementation review, namely calculating variances from baseline durations and evaluating variances (i.e., determining what caused them and making adjustments in subsequent projects when variances are significant), and that "a final project meeting should be held" to let the team have a say in "what should be fixed the next time around." (emphasis added.)

The last Office Action noted that Tinnirello teaches and discloses the following:
1) a business method for actively managing a dynamic process (e.g., project management, pg 3)
2) declaring and stating process Objectives as measurable Goals and Constraints

3) the ordering of tasks based on intertask dependencies -- by which Rules may act is determined solely by the requirement that each Rule's Condition and applicable Constraints must be satisfied before the Rule's Action occurs

4) declaring and stating Objective Rule Sets

5) delegating to a specific Actor

6) triggering a Rule's Action based on the satisfaction of the Rule's Condition

7) modifying an Element via the Action of a Rule triggered by a real world event

8) giving a declarative and non-procedural representation of steps and Elements

However, in general, to enable a computerized method for management of a declarative representation of a dynamic process as in Claim 112, the method **must** incorporate a declarative and non-procedural representation of Rules, distinguishing between Rules for representing dynamic process Objectives, Rules for Delegation, and Rules that modify Elements (i.e., Goals, Rules) of the dynamic process. Tinnirello does not disclose this, but Applicant does.

Furthermore, Tinnirello discloses (p. 414) that the project perspective of project management is distinct from the process perspective, upon which the claims of Applicant's invention explicitly depend, as is shown in independent claims 112, 191, and 192, Claim 112 stating, for example: "A computer-implemented business method for actively and declaratively managing, implementing, and executing a first dynamic process..." (emphasis added).

When Tinnirello discloses the ordering of tasks based on intertask dependencies, he considers the types of intertask dependencies. He does not consider and does not teach (1) expressing those intertask dependencies in a declarative and non-procedural representation as Rules; or, (2) that some tasks might not occur at all during the course of the project. Therefore, he cannot disclose any method which allows the ordering and occurrence of tasks to change dynamically as the sets of Rules change, nor that allows for tasks (Actions) that alter the set of Rules and intertask dependencies during project implementation. Tinnirello discloses the task interdependencies in order to establish the

project plan; it is NOT done to enable a process in which the ordering of Actions may change based on the collection of Rules currently in effect.

With regard to using declarative representation of Goals, Rules, Rule Sets, Conditions, Actions, Constraints, Measurable Values, Delegation, Objectives, and other types of Element to define and subsequently manage a dynamic process with a dynamic pattern of operations capable of self-modification, Applicant performs this for the first time. Until now, no one ever thought of managing a dynamic process in which the entirety could be characterized by declaratively represented Rules which themselves could change as the result of other Rules, and from which both changes to, and the instantaneous definition of, the business process were determined in an inductive manner. Applicant's method creates a manageable business process enabling every Element to be given a declarative representation and from which the system may then orchestrate the execution of the business process.

The Novel Features Of Claim 31 Produce New And Unexpected Results And Hence Are Unobvious And Patentable Over This Reference Under Section 103

Applicant submits that the novel features of new Claim 112 are also unobvious and hence patentable under section 103 since they produce new and unexpected results over Tinnirello.

These new and unexpected results are the ability of Applicant's system to evolve the business process definition during execution by expressing Rules that are automatically responsive via declaratively represented Rules to changes in real-world events as stated in step (d) and modify defining Elements of the business process itself during execution as clearly stated in step (e), producing a dynamic pattern of operations. This in turn results in a more stable, responsive, and efficient management of the business process, and therefore of the business. It minimizes risks, allows for the capitalization of human knowledge, and moves from a production-push to a dynamic, demand-pull method of management meeting requirements of the recently emerging real-time enterprises, specifically it allows the business to continually modify its actual operation to the most

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effective set and <u>dynamic pattern of operations</u> by letting the real-world Conditions, rather than an externally-imposed, preconceived, and static order of operations, dominate the business' behavior and interactions with the real-world. Applicant's system therefore is vastly superior to that disclosed by Tinnirello. The novel features of Applicant's system which effect these differences are, as stated, clearly recited in Claim 112.

Up To Now The Problem Of A Declarative Method of Business Management Solved By The Invention Was <u>Assumed Insoluble</u> By Those Skilled In The Art.

The combination of disparate, and heretofore incompatible, management principles and technologies required to effect Declarative Method of Business Management as defined in Applicant's invention was assumed impossible, and therefore the problem insoluble, by those skilled in the art.

At once, both the strategic and tactical Goals and Objectives of business managers must be met (as in the non-automated management-by-Objective), strategic results monitored and refined (balanced scorecard), activities and resources must be managed and tracked (as in workflow management), operational efficiencies and quality improved (as in total quality management), Actors empowered to provide extremely rapid, front-line response to ever shortened windows of opportunity given activity, the realities of unexpected events and human behavior (as in "Ready, Fire, Aim"), and the need to learn from the past (as in statistical management). Objectives, managerial decisions, historical trends, available resources, employee or other Actor decisions, capabilities, and availability, and real-world events are often in conflict, or contradictory. Applicant's invention uses a unique combination of techniques including novel techniques and those from numerous prior arts including (for example and without limitation) Rule-based expert systems, declarative representations, workflow management, business analytics, and process automation, that combination being accomplished to achieve the desired result only by violating certain prior art teachings such as enabling self-modifying (as contrasted with mere knowledge acquisition) and inconsistent Rule bases.

This point was stated succinctly by Professor H. Bidgoli in an affidavit to the PTO as part of a previous response:

> "*Nothing* I have written, read, or was aware of prior to reading the inventor's application *suggested that any of the combinations of techniques* described in the application *might be possible*, successful, or both possible and successful." [Emphasis added.]

Applicant respectfully draws Examiners attention to the fact that Professor Bidgoli is an expert in the art, was relied upon by the PTO in a prior Office Action, and is a respected teacher and authority on numerous areas of both computer science (including IS project management and expert systems) and business management as demonstrated by his curriculum vitae (also supplied to the PTO in a previous response).

Elements In The Prior-Art Have Been Omitted, And By The <u>Omission Of Elements</u> The Prior-Art Version Is Thus Made Simpler Without Loss Of Capability.
Tinnirello discloses a number of Elements in the art of project management which are omitted in Applicant's invention without loss of capability. Tinnirello's steps are shown by the 'bulleted' points, and the subsequent text describes major differences in Applicant's invention. Among the Tinnirello's Elements that Applicant omits are:

- the step of establishing inter-task dependencies (i.e., relationships) before the project is started (p.4)

Applicant's invention determines any required order of Action (including tasks) dynamically through Conditions Rules. Every Action is contingent on satisfaction of a Condition, the Action and its triggering Condition jointly being represented as a Rule. As Rules may change or be triggered at any time, inter-task dependencies need not be determined prior to "project" start. Note that the closest corollary to project start in

Applicant's invention is process start, but that *process* and *project* are not the same thing – especially for Tinnirello, as stated above.

- the step of determining task lengths (i.e., durations) (p.4-6)

Applicant's invention does not require the determination of task or activity durations, although it clearly enables estimated task durations (as defined in Tinnirello) to be expressed as Goals and actual task durations to be measured.

- the step of assigning resources either before or after task lengths are determined (p. 5-6)

As Applicant's invention does not require the determination of task lengths, it cannot require the step of assigning resources (i.e., employees) to be either before or after that step.

- the step of leveling resources by adjusting task schedules or resource assignments to maintain a consistent workload (p. 6)

Maintaining a consistent workload is not a requirement of Applicant's invention. However, it certainly enables manager's to establish Rules for this purpose, including Rules that would *automatically* adjust task schedules or resource assignments.

- the step of filling out timesheets for tracking times spent on tasks (p. 8-9)

Applicant's invention provides an automated system for business management of a dynamic process. Times spent on task are clearly Measurable Values from a source as defined in Claim 112, step (d). However, Applicant's invention enables such determining of times spent on tasks to be done automatically, even when tasks are performed manually but under direction of a system incorporating Applicant's method.

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- the step of calculating project variances once the project is complete (p. 9)

Applicant's invention does not require this step after the "project" is complete, but enables Rules to be established that compute variances as soon as the necessary Goals and Measurable Values are available. Since this provides faster monitoring and feedback than waiting for "project" completion, Applicant's invention is superior to the prior art.

- the step of maintaining a project manual (p. 35) and documentation (p. 41)

Applicant's invention does not require this step. As a Rule based automated system, any implementation of the invention is capable of maintaining a complete history of the process, using the Rules to track deliverable (e.g., Goals and Actions), communication between Actors (i.e., Actions), system overview (e.g., the Rules in the system and their inter-relationship), and performance (e.g., Measurable Values compared to Goals).

- the step of manually identifying any incident that could impede delivery so that corrective Action can be taken (p. 52)

Applicant's invention does not require this step. However, it enables the defining of a Rule in which the Condition is triggered whenever an event occurs that could impede timely completion of any Action. Once such Rules are defined, manual identification of "incidents" is not necessary. Furthermore, the Rule's Action can be, for example, automatically alerting an Actor (such as a manager) of the event or implementing a corrective Action. Thus, Applicant's invention is superior to the prior art since it permits automation of previously manual and fortuitous incident identification, and manual, ad hoc, and potentially inconsistent corrective Actions.

None of these steps are relied upon by Applicant's invention, thereby making Applicant's invention simpler than project management as disclosed in Tinnirello, and without loss of capability but, to the contrary, with a gain in capabilities as noted above.

Up To Now The <u>Advantages Of The Invention Were Unappreciated</u> By Those Skilled In The Art

Even if somehow construed as inherent in the prior art (which Applicant denies), the advantages of integrating the various software techniques and arts necessary to implement Applicant's invention were clearly not appreciated by those skilled in the art, since, in order to appreciate advantages, an invention would have to be deemed both possible and, to some degree, successful. Yet, as noted by both Professor Bidgoli in his affidavit to the PTO, nothing in the prior art suggested Applicant's invention, or that it was possible:

> "Nothing I have written, read, or was aware of prior to reading the inventor's application suggested that any of the combinations of techniques described in the application might be possible, successful, or both possible and successful." and
>
> "Those with ordinary skill as described above, upon reading the inventor's application, would appreciate the invention's usefulness. Its advantages were clearly stated."

If The Invention Were In Fact Obvious, Because Of Its Advantages, Those Skilled In The Art Would Surely Have Implemented It By Now, Yet The Invention <u>Lacks Implementation</u> As Of Applicant's Filing Date.

Neither the last nor any previous Office Action has cited an implementation of Applicant's invention, but have merely provided strained interpretations of individual Elements of one or more prior art citations, none of which were combined so as to produce the results of Applicant's invention. Furthermore, two well-known experts in the fields of computer science and business management (one of whom was cited in a previous Office Action) have provided the PTO with affidavits stating that the invention had even been suggested, let alone found implementation, in anything they had written, read, or of which they were aware. Professor Bidgoli stated:

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"Nothing I have written, read, or was aware of prior to reading the inventor's application suggested that any of the combinations of techniques described in the application might be possible, successful, or both possible and successful."

and

"Those with ordinary skill as described above, upon reading the inventor's application, would appreciate the invention's usefulness. Its advantages were clearly stated."

Professor James Evans stated:

"As such, it is my opinion that to the best of my understanding of the invention, it was not known, practiced, suggested, or made obvious by TQM, *nor is it made obvious in* my writings or *any published literature of which I am aware* as of 12/30/1999." [Emphasis added.]

The Reference (Tinnirello) Is Misunderstood In That It Does Not Teach What The Office Action Relies Upon It As Supposedly Teaching.

Tinnirello teaches project management as contrasted with business process management of Applicant's invention, and Tinnirello clearly teaches that the project perspective is distinct from the process perspective (p. 414). Furthermore, Tinnirello teaches that project management pertains to project planning, scheduling, monitoring, and evaluation (but not execution as in Applicant's invention). Additionally, Tinnirello does not disclose any specific computer implementation of project management and in particular does not disclose declaratively represented Rules having a Condition and an Action, let alone Rule Sets, which are required by Applicant's invention. Neither Tinnirello (nor Davis) disclose the physical novelty of distinct types of Rules (including Objective Rules, Delegation via Rules, and Rules for accomplishing Objectives) having a particular interrelationship and integration as stated in Claim 112.

Tinnirello's failure to disclose specific methods comparable to those of Applicant's invention, even for project management, emphasizes the need and value of methods as disclosed by Applicant's invention, even for the relatively simplistic case of software project management as contrasted with application to any dynamic business process.

The Invention Is <u>Contrary To The Teachings Of The Prior Art</u>, Going Against The Grain Of What The Prior Art Teaches.

Tinnirello teaches against diffusing responsibility among several subordinate teams (p. 106). By contrast, Applicant's invention teaches a method of managing such delegated responsibility among several subordinate Actors, clearly inclusive of subordinate teams, as in step (c). These are clearly contrary teachings.

Also, Tinnirello teaches process redesign as subordinate to, in the context of, and from the perspective of, project management (p. 106). By contrast, Applicant's invention teaches a method of continuous process alignment and modification, without the limitation of a project management context or perspective. Teaching process (e.g., process redesign) to be subordinate to the context, perspective, and methods of project management, as in Tinnirello, and teaching process as superior, as in the methods of Applicant's invention, are clearly contrary teachings.

Tinnirello discloses treating employees as resources ("resources (i.e., employees)" – p.5) to be assigned to a task, while Applicant's invention carefully distinguishes between Actors (e.g., employees) and Constraints and the Conditions of Rules (either of which can be used to require resource for an Action or task).

Tinnirello's disclosure follows the well-known and ancient allocation system of the scientific management theory of Frederick Taylor (Principles of Scientific Management, 1911, http://socserv2.socsci.mcmaster.ca/~econ/ugcm/3ll3/taylor/sciman). A Goal of this theory is to enable employees to be treated by planners as predictable resources that reliably produce the highest possible output. By implication, employees are treated as being without independent intelligence, decision making capabilities, or behavior, and are

required to do as instructed when assigned to a task. Indeed, Tinnirello suggests that responsibility for timely completion of tasks resides with whatever agent (e.g., the planner or project manager) assigns resources (i.e., employees) and that additional resources (i.e., employees) might need to be assigned to "maintain a consistent workload" (p.6). It is well-known that this approach does not accommodate creative modification, adaptation, or improvement to task execution by employees, a benefit of Applicant's invention.

By contrast with traditional scientific management and the task-based project management methods that arose from it, Applicant's step of "delegating ... authority via at least one Rule ... accountability via at least one Rule ... responsibility via at least one Rule ..." conveys to Actors all that is necessary to make independent decisions and so to be creative in accomplishing and managing tasks.

The Office Action Has Made A <u>Strained Interpretation</u> Of The Reference (Tinnirello) That Could Be Made Only By Hindsight In Light Of Applicant's Invention.

As Tinnirello never discusses a declaratively represented, Rule-based implementation of project management, let alone of a dynamic process for managing a business establishing a dynamic pattern of operations as in Applicant's invention.

The Office Action's reasoning, if continued to the new Claim 112, would interpret step (a) of Claim 112, "declaring and stating an Objective of said first dynamic process as a set of measurable Goals and Constraints..." which are required by the claim to be declaratively represented (as the Title and Specification also assert), as "breaking down a project into measurable tasks". However, as Tinnirello never discloses any declaratively representation, this interpretation could only be made by hindsight in light of Applicant's invention.

The Office Action's reasoning, if continued to the new Claim 112, would interpret step (b) of Claim 112, "declaring and stating at least one Objective Rule Set having a plurality

of Rules...", as "determining inter-task dependencies". [Hereinafter, instead of this construction, to save space Applicant will cease to use the subjunctive, though it should be considered as still applying] However, as Tinnirello never discloses inter-task dependencies as declaratively represented Rules, this interpretation could only be made by hindsight in light of Applicant's invention. The Office Action's strained interpretation necessarily leaves numerous Elements of Applicant's claim unspecified, including Rule, Rule Condition, Rule Action, Rule Set, Objective Rule Set, and the capability granted through the declarative stating that Rules that can act in any order. If the Office Action's unstated but intended interpretation is of a pair of predecessor and successor tasks as a Rule, this suggests (but the Office Action fails to state) that the predecessor task is somehow equivalent to Applicant's Rule Condition (and the successor task is somehow equivalent to Applicant's Rule Action). However, Tinnirello nowhere describes a task as such a Condition. Indeed, Tinnirello nowhere defines any Element that captures a testable Condition, let alone one that is the only determinant of the order by which Rules may act. A set of pairs of predecessor and successor tasks cannot "act in any order" since the only examples of inter-task dependencies given by Tinnirello are fixed prior to project start and it is clear that the point of "Determining Inter-task Dependencies" is to identify such required order in advance: By contrast, Applicant's invention clearly permits such dependencies to be dynamic and so changed at any time – hence the use of the phrase "dynamic process" and "dynamic pattern of operations" as disclosed in Applicant's Claim 112. Further, Applicant's method permits Rules to modify any Element, including the Conditions of other Rules and therefore order in which they might trigger. In Tinnirello, there is no conceivable Rule Condition that might result in an Action that alters the order imposed by inter-task dependencies.

The Office Action interprets step (c) of Claim 112, "delegating to at least one specific set of Actors...", as "assigning a resource, such as an employee to the measurable task, along with the determined inter-task dependencies." Yet, Tinnirello only discloses assigning at least one specific Actor (i.e., "one or more employees") to each task as a resource, and not delegating (which is different from assigning) responsibility, authority, and accountability for tasks to Actors as in Applicant's invention. Furthermore, Tinnirello

fails to disclose delegating any of authority, accountability, or responsibility, let alone for attaining any measurable Goal of any Objective. Tinnirello does not even mention "resources", and either authority or accountability in the same context.

Tinnirello fails to disclose "delegating … at least a first subordinate Objective", let alone "stating that Objective as a subset of subordinate, measurable Goals and subordinate Constraints." Tinnirello fails to disclose "delegating …a set of Rules for accomplishing said first subordinate Objective." Tinnirello fails to describe any concept of Objectives as defined by Applicant (specification page 17 "the business' Objectives are explicitly stated as …), merely noting that a task must "finish". What "finish" means and any mechanism for detecting it is left completely to the imagination of the reader. Tinnirello fails to disclose Rules, let alone any Rule for delegating, let alone for delegating authority, accountability, or responsibility.

The Office Action interprets step (d) of Claim 112 "determining the satisfaction of any Rule's Condition…" as "determining the type of inter-task dependency, including the predecessor and successor tasks." As made in explicit in step (h), the word "satisfaction" is a technical term of art: "A formula in classical logic is satisfiable if it evaluates to true under some interpretation" (Tucker p. 672). The Office Action seems to equate "satisfaction" to the word "type" or perhaps "determining the type", which Applicant respectfully finds completely incomprehensible. Tinnirello's "determining the type of inter-task dependency" introduces a classification scheme for dependencies, not the testing of a Condition as it pertains to the use of Rules in Applicant's invention. Tinnirello fails to disclose "… triggering the occurrence of said Rule's Action." Indeed, nothing is triggered in Tinnirello. A dependency is not a Rule that triggers anything, despite Office Action's strained interpretation of cited prior art. It might be construed as a Constraint on what might occur, but cannot be an active Element that causes any occurrence. Tinnirello contains no agent by which triggering of an Action could occur; rather, project management is a tool for planning and tracking and both the project manager and the resources operate outside of it. If a predecessor task completes, there is no active and dynamic mechanism by which any successor task is triggered (in the sense

in which that term is used by Applicant). Furthermore, contrary to the Office Action's assertion and reading into the prior art, Tinnirello does not disclose "Measurable Values." Indeed, Tinnirello fails to teach what is meant by "Measurable Tasks" let alone how they might be computer implemented, and is therefore not enabling.

The Office Action interprets step (e) of Claim 112, "modifying at least one Element of said dynamic process through the Action of at least a Rule whose Condition is triggered by at least one input from an event in the real world", as "refinement of the project plan, including adjustment of task dependency." The word "Element" is clearly defined in step (g) as including any of a Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable Value, or Delegation, and Tinnirello discloses none of these as equivalent to a task dependency. Only in hindsight of Applicant's invention is there any motivation to make such an interpretation, and said interpretation fails to identify in Tinnirello any Rule that modifies anything, let alone a task dependency. Furthermore, even if the Office Action's reading of the prior art was valid, Tinnirello would still not rise to the comprehensive level of Applicant's invention which is more encompassing and powerful than the limited application of "project management" as foreseen and disclosed by Tinnirello. But the Office Action's interpretation cannot be valid, since there is no Rule by which the Office Action's asserted "modifying" occurs; rather, Tinnirello states that "project administrators might want to refine it", clearly a volitional activity that is neither controlled nor implemented by Rules. Such control or implementation using declaratively represented Rules is not even suggested by Tinnirello.

The Office Action further interprets the wherein clause of step (d) of Claim 112, "wherein said Rule's Condition incorporates at least one Measurable Value from at least one member of a set of sources; and, said set of sources comprise a source internal to said dynamic process, a source external to said dynamic process, and a source in the real world", as "Measurable Values include the completion of predecessor tasks which trigger the successor tasks." The Office Action's strained interpretation fails to provide any identification of a Rule's Condition, or a Measurable Value (in this specific context), let alone both.

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The Office Action's vague interpretation of step (j) of Claim 112 as being identical with "software implementation of project management" (presumably a reference to "Project management packages..." or perhaps "project management software" since Tinnirello does not use the words "software implementation") fails to show that any representation of any process in Tinnirello is "declarative and therefore non-procedural". Tinnirello fails to disclose anything that is "declarative and therefore non-procedural." The words "declarative" and "non-procedural" as well-known terms of art, which Applicant has both defined and used consistently and which were defined in references cited in a previous the Office Action (Tucker p. 1584).

In addition to withdrawing the original claim 31, Applicant has added steps (f), (g), (h), and (i) to Claim 112, to more forcefully differentiate the invention over the prior art.

The Invention Utilizes A <u>New Principle Of Operation</u> And Applicant Has Blazed A Trail, Rather Than Followed One.

Applicant's invention introduces a new principle of operation in business management, namely, using a declaratively represented Rule-based system with self-modification capability to maintain and manage a business, representing a business in terms of its processes. In contrast to other methods, which attempt to capture, convey, and act on managerial decisions in response to events, a fundamental principle of operation of Applicant's invention is the capturing and maintenance of managerial intent and Objectives in Rules that anticipate possible events that produce a specified and testable Condition, so that Actions can be triggered automatically without the delays inherent in event detection, analysis, and post-event manual decision making. Prior to the present invention, neither Rule-based automated response systems nor workflow management systems were capable of representing the complexity of business management practice involving a mixture of human and automated Actors, or adapting a process as a dynamic pattern of operations. Achieving this capability required Applicant to blaze a new trail, integrating previously unintegrated tools and techniques in a unique and novel manner to

achieve hitherto unforeseen results. Furthermore, certain aspects of the method required to achieve that integration, such as software self-modification and Rule-based expert systems that address problem where there is disagreement among human experts, were taught against in the prior art.

Applicant respectfully draws Examiner's attention to Professor Bidgoli's curriculum vitae, who teaches courses in Data Processing Project Management; and his affidavit as submitted to the PTO in response to a prior Office Action::

> "Nothing I have written, read, or was aware of prior to reading the inventor's application suggested that any of the combinations of techniques described in the application might be possible, successful, or both possible and successful." and "Those with ordinary skill as described above, upon reading the inventor's application, would appreciate the invention's usefulness. Its advantages were clearly stated."

and

> "The novelty of this invention is its integration of these various tools and processes into a declarative method that assists a businessperson to manage a business. This integration of tools, concepts and processes were certainly not obvious to me. Its uniqueness and advantages are clearly introduced by the inventor in his proposal."

Similarly, Professor James Evans, whose expertise includes management science and operations research, is clearly familiar with the techniques of project management stated in his affidavit submitted to the PTO in a prior Office Action:

> "As such, it is my opinion that to the best of my understanding of the invention, it was not known, practiced, suggested, or made obvious by TQM, nor is it made obvious in my writings or any published literature of which I am aware as of 12/30/1999."

Applicant's Invention <u>Solves A Different Problem</u> Than Tinnirello, And Such Different Problem Is Cited In The Claims. *In re Wright*, **6 USPQ 2d 1959 (1988).** Tinnirello teaches project management as contrasted with the business method of managing a dynamic process of Applicant's invention, and Tinnirello clearly teaches that the project perspective is distinct from the process perspective (p. 414). Furthermore, Tinnirello teaches that project management pertains to project planning, scheduling, monitoring, and evaluation (but not execution as in Applicant's invention). Additionally, Tinnirello does not disclose any specific computer implementation of project management and in particular does not disclose declaratively represented Rules having a Condition and an Action, let alone Rule Sets, which are required by Applicant's invention. Neither Tinnirello nor Davis disclose the physical novelty of distinct types of Rules (including Objective Rules, Delegation via Rules, and Rules for accomplishing Objectives) having a particular interrelationship and integration as stated in Claim 112.

Finally, the Office Action has presented no convincing line of reasoning as to why the claimed subject matter as a whole, including its differences over the prior art, would have been obvious, perhaps because the Office Action conceded that Applicant's invention .

The Dependent Claims Are *A Fortiori* Patentable Over Tinnirello

Dependent claims 32 to 109 have been withdrawn and new dependent claims 113 to 190 submitted. Claims 113 to 190 incorporate all the subject matter of Claim 112 and add additional subject matter which makes them *a fortiori* and independently patentable over this reference.

Claim 113 additionally recites:

"iterating at least one of the steps of declaring and stating, delegating, determining, and modifying."

This is entirely foreign to Tinnirello since the system of this reference does not incorporate or disclose Rules (as in Claim 112, step (h)); and, each of 'the steps of declaring and stating, delegating, determining, and modifying' depend upon such Rules and upon other Elements (as in Claim 112, step (g)), that are declaratively represented.

Furthermore, although Tinnirello uses the words "revising and updating project status," only tools for tracking project status are being described, rather than "a computer-implemented business method for actively and declaratively managing, implementing, and executing a first dynamic process incorporating a dynamic pattern of operations driven by real-world Conditions, through which at least a first behavioral pattern emerges." Status is, at best, a measured value, and "revising and updating" status does not involve any of the steps of declaring and stating, delegating, determining, or modifying, as per Claim 112. Indeed, it would be impossible for Tinnirello to disclose such iteration since all the claims of Applicant's invention explicitly incorporate Rules and the use of such Rules are not disclosed Tinnirello.

Claim 114 further adds "the step of redeclaring and restating at least one Action of at least one Rule as a second dynamic process." Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Tinnirello fails to disclose any "second dynamic process" as distinct from any first dynamic process. Tinnirello fails to disclose "redeclaring and restating at least one Action of at least one Rule" since Tinnirello never discloses Rules as in Claim 112, step (h).

Claim 115 further adds "the dynamic process represents a business's operational flow, said operational flow being that business's fundamental business activity of producing goods and services". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Tinnirello does not disclose a project plan as the "a business' operational flow" of any business, and Office Action does provide a specific citation. Office Action's reading of Applicant's invention into a fresh interpretation of the prior art by hindsight fails to identify any business for which a project plan is the flow of that business' fundamental business activity of providing goods and services to customers (the accepted, and Applicant's intended, meaning of "operational flow"), which language is explicitly incorporated in new claim. Even if Office Action's reading could be justified, Applicant's invention has no limitation to any specific business activity, let alone to the rather artificial and highly controlled discipline of software project management, and yet Tinnirello discloses no other application.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 116 further adds "at least one new Element to the dynamic process in response to at least one input". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Tinnirello fails to disclose adding at least one new Element to the dynamic process in response to at least one input, or any reason to interpret this as "adding a task". Office Action fails to provide a specific cite to the reference. The Office Action interpretation of this as "adding a task" fails to recognize that Element means any of a Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable Value, or Delegation. "Task" is not included. Office Action is perhaps interpreting "adding an Action" as "adding a task", but neither Tinnirello nor any other prior art discloses a task of project management as being the conclusion of a predicative rule or implication, let alone an Action as in Applicant's claims,. Such an interpretation is clearly strained since an Action is a component of a Rule, and Tinnirello does not disclose Rules as in Claim 112. Office Action's interpretation attempts to read Applicant's invention into Tinnirello by hindsight. Furthermore, adding a task in the context and limited utility of software project management does not address the broad context and utility of Applicant's rule-based and process-centric declarative method for business management.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 117 further adds "the step of using the measurable Goals and Measurable Values to enable assessment of any member of a set of assessments, that set of assessments comprising risk of error, minimum contribution of any Rule to the Goal, maximum contribution of any Rule to the Goal, risk of deviation from the Goal due to the Action of any Rule, performance of at least one Actor, and relative efficiencies among any two Actors". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action's assertion that Tinnirello discloses "risk management, including identification, analysis, and mitigation." While risk management may includes assessing "risk of error", Tinnirello does not disclose the measurable Goals and Measurable Values of Applicant's invention nor the Rules as in Claim 112 step (h). Furthermore, Tinnirello does not disclose other types of assessment in Applicant's claim, let alone being capable of assessing any of them.

Claim 118 further adds "using the deviation of Measurable Values from measurable Goals for at least one member of a set comprising accounting control, regulatory control, and reporting without first requiring that the dynamic process terminate". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action states that Tinnirello discloses "calculation of variances, including budget and cost variances." However, the cited pages at most disclose using this "deviation of measured values from measurable Goals" for "reporting", ignoring Applicant's disclosure of both regulatory control and reporting. As Tinnirello clearly states that variances are calculated "once the project is complete" and so require that this presumed "dynamic process" first terminate. It follows that the method of calculating variances as disclosed by Tinnirello cannot be used for control of a dynamic process since it is then obviously too late to effect any change!

Claim 119 further adds "wherein said method forms a business autopilot, which, once initiated, requires no human intervention to manage successful execution of said subset of the dynamic pattern of operations even when Actions and operations are implemented by human Actors". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action interprets a "business autopilot" as meaning that "project plan management is able to determine overall completion of the project and determine status at any time." However, an autopilot (i.e., automatic pilot) maintains a course or direction without human involvement and such language is explicitly incorporated in the claim. Tinnirello never suggests any form of software project management without human involvement.

The Office Action fails to provide a specific cite to the reference. Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 120 further adds:
> "including a set of Constraints consisting of at least one Constraint;
> including a first Rule Set consisting of at least a first Contained Rule;
> including a second Rule Set consisting of at least a second Contained Rule; and,
> including a set of ordering Rules consisting of at least one ordering Rule;
wherein the relative order by which each first Contained Rule in the first Rule Set and at least a second Contained Rule in the second Rule Set are satisfied is determined according to at least one member of a set comprising the set of Constraints, implicit Rule precedence making the Action of each first Contained Rule in the first Rule Set satisfy a Condition of the second Contained Rule, the set of Constraints, and the set of ordering Rules".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Tinnirello never mentions the use of Rules as in Claim 112, step (h), let alone a first Rule Set, a second Rule Set, a set of Constraints, a set of ordering Rules, or an ordering Rule. Office Action does not, and cannot, identify these differentiated Elements of claim 120 in

the cited prior art. The determining of inter-task dependencies, including determining predecessor and successor tasks, therefore cannot disclose this claim.

Claim 121 further adds "declaring and stating at least a first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the first Rule Set, and wherein the second Rule Set inherits from the first Rule Set at least one Condition of a Rule in the first Rule Set as a Constraint on the second Rule Set and at least one Action of a Rule in the first Rule Set as a Goal of the second Rule Set". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action fails to cite any specific prior art, but merely refers to sub-tasks or dependent task. Furthermore, the Office Action fails to identify any reference wherein "... a second Rule Set inherits from the first Rule Set at least one Condition of a Rule in the first Rule Set as a Constraint ... Goal of the second Rule Set." Tinnirello does not disclose Rules, Rules sets, inheritance of Conditions as Constraints or Actions as Goals between Rule Sets, and therefore cannot disclose this claim.

It is unclear how either a sub-task or a dependent task is to be understood and why the Office Action mentions them, since Applicant is unable to locate either of these terms in the cited prior art. Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 122 further adds "declaring and stating at least a first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the first Rule Set, and wherein at least one change in Constraints by Action of at least one Rule of the second Rule Set is passed to the first Rule Set". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "sub-tasks or dependent task, wherein a change in the first task timing affects the subordinate sub-task timing" as being on page 4 of Tinnirello. It is unclear how either a sub-task or a dependent task is to be understood and why the Office Action mentions them. Applicant is unable to locate either of these terms in the cited prior art on page 4. The Office Action fails to identify in the cited prior art the Elements of Rule, first Rule Set, second Rule Set, Constraint, or Action, ore relate sub-tasks or dependent tasks to them. Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Furthermore, the Office Action misstates Applicant's claim 122 since the claim clearly states that it is the subordinate (second Rule Set) that affects the superior (first Rule Set), whereas the Office Action's purported citation refers to a superior affecting the subordinate.

Claim 123 further adds "wherein said declarative and therefore non-procedural representation is at least one member of a representation set comprising symbolic logic and declarative computer language". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action fails to specify any specific reference in the prior art for Applicant to compare. Applicant is unable to identify any place in Tinnirello where tasks and corresponding timelines are "represented by mathematical representations", let alone a "declarative and therefore non-procedural representation" (and please note the specific meaning of this term of art) in either symbolic logic or a declarative computer language.

Claim 124 further adds "for at least one Rule:
      the Condition of said Rule detects a difference between at least one Element of said dynamic process and a Measurable Value from at least one input, and the Action of said Rule has an affect on at least that one Element of said first dynamic

process by modifying that one Element to do at least one member of a response set comprising accommodate the Measurable Value, and adjust performance of said dynamic process as indicated by the Measurable Value".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "calculation and evaluation of variances, including costs." Tinnirello does not mention Rules, nor any Element (i.e., any of a Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable Value, or Delegation) other than Constraint and Measurable Value. Furthermore, inasmuch as Tinnirello clearly states that calculation and evaluation of variances, including costs, is performed <u>after the project completes,</u> these cannot be used to "adjust performance of said dynamic process" as equally clearly stated in Applicant's claim.

Claim 125 further adds "analyzing the efficiency of a business operation by measuring the deviation of Measurable Values from measurable Goals". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello. to Tinnirello.

The Office Action interprets "calculation of variances" as an example of this claim. However, as argued above, Tinnirello fails to meet the requirements of Claim 112 on which this claim depends. Furthermore, software project management is in a different field from the process-centric business management of Applicant's claims, and even Tinnirello differentiates the project and process perspectives (p. 414). Yet further, Applicant's invention is not limited to such business operations as might be construed as part of software project management, but Tinnirello clearly is so limited, disclosing numerous assumptions and requirements that have no corollary in Applicant's invention.

Claim 126 further adds:

> "incorporating a set of resolving Constraints comprising at least one member of a resolving set comprising a resolving Constraint and a resolving Rule; and,
>
> incorporating at least one ambiguous Rule;

wherein said set of resolving Constraints determines whether the ambiguous Rule's Action will be triggered when the evaluation of the ambiguous Rule's Condition is not a value that has been otherwise determined to cause the ambiguous Rule's action to trigger."

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "task inter-dependency, wherein subsequent tasks are triggered based upon task relationships." The Office Action fails to cite any place in the text of Tinnirello where any of 'a resolving Constraint', 'a resolving Rule', 'an ambiguous Rule', 'a Condition', or any example of "the evaluation of an ambiguous Rule's Condition" might be found in the prior art. Applicant cannot find these in Tinnirello and Tinnirello does not disclose Rules.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 127 further adds "in the step of delegating, at least one member of what is delegated to one specific Actor is a consequence of the Rules, Constraints, and measurements associated with an Actor". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "assigning of resources, including resource leveling." The Office Action fails to identify any Delegation in Tinnirello, let alone one that occurs as "a consequence of Rules, Constraints, and measurements assigned to an Actor." Applicant

respectfully emphasizes that "Delegation" and "Actor" has a specific usage within Applicant's specification and claims, which usages are not present in Tinnirello. Applicant also respectfully notes that Tinnirello's assigning of resources does not constitute Delegation as clearly defined in Applicant's specification (p.17) since such assignment does not provide the "resource (i.e., employee") with authority, accountability, nor responsibility. Applicant's claim requires that Actions be assigned to Actors, but Tinnirello actually discloses the converse, assigning the resource to a task. The project manager who does this assigning retains authority, accountability, and responsibility for the task as is clearly seen by the need for the project manager or administrator (rather than the assigned resource) to perform "resource leveling" in order to maintain constant workloads.

Claim 128 further adds "wherein at least one Element maintains consistency among any combination of authority to act, responsibility, response to operational failure, and accountability". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "executive level functions". The Office Action fails to identify any Element (i.e., any of a Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable Value, or Delegation) in Tinnirello that "maintains consistency among any combination of ..." While an executive might indeed be given responsibility for maintaining such consistency, Applicant emphasizes that the term Element has a specific and well-defined meaning in Applicant's claims that does not include an executive or other human being.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 129 further adds "wherein at least one Rule makes explicit why Actions are undertaken and what is to be achieved". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "Objective, including specific measurable benchmark that the project must achieve towards accomplishing Goals, such as tasks". Tinnirello does not disclose Rules as in Claim 112. A measurable benchmark is not a Rule, as it does not have a testable Condition and an Action. Tinnirello explicitly equates a measurable benchmark with an Objective on the page cited by Office Action (p. 394): "...an Objective is a specific measurable benchmark that the project must achieve toward accomplishing Goals."

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 130 further adds "replacing a first Unrefined Rule by a set of refinement Rules that include at least the Action of the first Unrefined Rule without the set of refinement Rules including the first Unrefined Rule". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

This claim enables a rule-based breakdown of objectives, into ever finer rule-based implementation. As noted in Applicant's specification, this hierarchical breakdown has the benefit of diffusing the risk of a single Rule having excessive and potentially undesirable impact.

The Office Action does not provide a specific citation and Applicant can find no occurrence of the phrase "related objectives" in Tinnirello. Tinnirello only discloses a breakdown or refinement of tasks. Furthermore, Tinnirello does not use the terms Rule or refinement Rule, let alone describe any instance of a Rule being replaced by a set of refinement Rules.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 131 further adds:

> "incorporating a first risk of error associated with the first Unrefined Rule;
>
> incorporating a second risk of error associated with a second Refinement Rule
>
> belonging to the set of refinement Rules;

wherein the second Refinement Rule has the least risk of error of any Refinement Rule in the set of refinement Rules; and wherein the second risk of error is not greater than the first risk of error".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "risk analysis" but fails to identify how risk of error is associated with Rules in Tinnirello, and cannot do so since Tinnirello does not mention Rules or refinement Rules. On the cited page, Tinnirello simply describes how to assess whether or not a potential risk qualifies as a real risk based on three requirements ("Conditions"). Note that Tinnirello uses "conditions" in the manner of required properties of a potential risk (p. 55 "There are three Conditions that must be met in order to confirm a potential risk as a real risk."), and not in the manner defined by Applicant as a necessary Element of a Rule that can be evaluated as potentially "true" (p. 15, see both 'A "Condition" is...' and 'A "Rule" is...'). Tinnirello discloses no selective refinement based on risk analysis or assessment, as in this claim.

Claim 132 further adds "wherein the step of declaring and stating at least one Objective Rule Set comprises stating at least a first Objective Rule Set and a second Objective Rule Set, wherein the first Objective Rule Set operates at a first level of the dynamic process and the second Objective Rule Set operates at a second level of the dynamic process".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "division of project into executive level, project level, and team level functions." Tinnirello does not use Rule, Rule Set, or Objective Rule Set irrespective of any level or division of a project, let alone as a method of differentiating levels, and Office Action fails to provide specific identification of any terms corresponding to these Elements. Tinnirello does not specify any relationship among executive, project, and team level functions, let alone one incorporating Objective Rule Sets, but merely describes an *a priori*, hierarchical, and fixed "division of labor" and "levels of responsibility."

Claim 133 further adds "wherein said first and second levels are indistinct and said first Objective Rule Set and said second Objective Rule Set form a peer to peer organization".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello. to Tinnirello.

The Office Action cites "project management communication structure." Tinnirello does not use Rule, Rule Set, or Objective Rule Set irrespective of any level or division of a project, let alone as a method of identifying levels as peer-to-peer, and the Office Action fails to provide specific identification of any terms corresponding to these Elements. Tinnirello does not specify any relationship among executive, project, and team level functions involving Objective Rule Sets, and the cited page does not describe a peer-to-peer organization. To the contrary, Tinnirello states (p. 100) that four levels of the project management communication structure (Exhibit 9.1, p. 101) represent "a hierarchical structure of organizations" which is "current reality."

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 134 further adds "wherein said first and second levels are distinct and said first Objective Rule Set and said second Objective Rule Set form a hierarchical organization". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites project management communication structure." Tinnirello does not use Rule, Rule Set, or Objective Rule Set irrespective of any level or division of a project, let alone as a method of identifying levels as hierarchical, and the Office Action fails to provide specific identification of any terms corresponding to these Elements. Tinnirello does not specify any relationship among executive, project, and team level functions involving Objective Rule Sets.

Claim 135 further adds "declaring and stating at least a first Rule Set and a second Rule Set, wherein the second Rule Set is subordinate to the first Rule Set, and wherein the first Rule Set further receives, from the second Rule Set, the result of an Action by a Rule of the second Rule Set as satisfaction of at least one Condition of a Rule of the first Rule Set".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "determining inter-task dependencies, including determining successful completion of predecessor <of> a task." Tinnirello does not use Rule, Rule Set, first Rule Set, second Rule Set, subordinate, Action, satisfaction, or Condition. The Office Action erroneously equates a predecessor/successor relationship (which is linear or sequential) with a superior/subordinate relationship (which is hierarchical). Tinnirello

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discloses no superior/subordinate relationships among tasks at all, let alone a superior/subordinate relationship among Rule Sets.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 136 further adds "wherein the first Rule Set further comprises at least a superior Objective and wherein the Action of the second Rule Set conveys information to the first Rule Set sufficient for the first Rule Set to alter at least the superior Objective when the superior Objective does not conform to a Measurable Value from the real world". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Tinnirello does not use the terms Rule, Rule Set, first Rule Set, second Rule Set, subordinate, superior, superior Objective, Action, satisfaction, or Condition. The Office Action's reference to "a task that includes a sub-task" does not cite the prior art, and Applicant cannot find the vague referent of "sub-task". Even so, Tinnirello does not disclose conveyance of information between Rule Sets, Rule Sets in a superior/subordinate relationship or the alteration of a superior Objective. Tinnirello discloses no superior/subordinate relationships among tasks at all, let alone a superior/subordinate relationship among Rule Sets.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 137 further adds:

"including at least a second Rule Set comprising a set of Rules that are connected and have no Rule for which both its Condition is not satisfied by some combination of Actions and events, and its Action does not eventually in

combination with the Actions of other Rules in the set satisfy the Conditions of at least one Rule;

including at least a first Rule in said second Rule Set whose Condition has been satisfied at least once;

and,

further including a set of pairs comprising an identification of a satisfied Rule and a time said satisfied Rule was satisfied, said set of pairs being partially ordered and constituting a first subordinate process".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "sub-tasks that make up the overall task/objective, wherein the rules of the sub-tasks inherently affect the overall task/objective." The Office Action does not cite any page in the prior art reference, and Tinnirello does not use the vague referent of "sub-task" or rules of any task or sub-task. Clearly, this strained interpretation of the Office Action attempts to read Applicant's invention into the prior art by the benefit of hindsight. Tinnirello does not disclose the many details of this claim including Rule, Rule Set, first Rule Set, second Rule Set, any tracking of the time at which a Rule was satisfied, partial ordering, pairs comprising an identification of a satisfied Rule and a time said satisfied Rule was satisfied, subordinate process, Action, satisfaction, Condition, Actions, events, or connected Rules defined according to their satisfaction, nor the many steps required to combine them specifically as in Applicant's claim. These many details and many steps of combination mitigate against any obviousness in light of Tinnirello or any other prior art.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 138 further adds "wherein the second Rule Set comprises the entire set of satisfied Rules of the first dynamic process and no explicit ordering of the Rules in the second Rule Set is provided in defining said first dynamic process". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "sub-tasks inherently contain rules of overall task." The Office Action's reference to sub-task does not cite any specific text, or page, of the prior art, and Applicant cannot find the vague referent of "sub-task". Furthermore, the Office Action fails to identify (within the prior art reference) Rules, let alone a Rule Set without any explicit ordering (explicit precedence relationships, a.k.a. dependency relationships) that define a dynamic process. Furthermore, and contrary to the Office Action assertion, Tinnirello only discloses tasks that have some explicit ordering.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 139 further adds "wherein said set of Rules includes at least one anticipatory Rule, the satisfaction of the Condition portion of said anticipatory Rule being merely a possibility and neither a prediction nor a mandate, when said anticipatory Rule is initially stated". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "sub-tasks inherently contain Rules of overall task". The Office Action's reference to sub-task does not cite specific text elements or locations in the prior art, and Applicant cannot find the vague referent of "sub-task". The Office Action fails to identify (within the prior art) Rules, let alone anticipatory Rule, and Applicant requests that the Office Action clearly identify where each and every Element of the claim is alleged to occur within the prior art. Tinnirello clearly intends that every task in a project is to be performed (he does not describe tasks as conditional), so it is obvious to Applicant that the Office Action cannot be equating a task with an anticipatory Rule or

even with a Rule's Action. Just what the Office Action is identifying as an anticipatory Rule in the prior art is a mystery.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 140 further adds "wherein said Condition of said anticipatory Rule incorporates at least one conjunct which, at the time of creation of the Rule, incorporates a Measurable Value that is contrary to the known and projected state of the real world". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "Objective of task that may be assigned to incorrect resource or outside scope of resources available" an example of the claim. The Office Action provides no cite in the prior art reference for this example, nor any explanation as to how it would allegedly read on Applicant's claim. As admitted by the Office Action, Tinnirello does not explicitly disclose claim 59, and Applicant asserts that it is not disclosed implicitly either since Tinnirello fails to disclose Rules, Conditions, and anticipatory Rules.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 141 further adds:
> "storing said declarative and therefore non-procedural representation in a static and stable form;
> and, preserving human knowledge of said dynamic process".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "baseline view of project objectives and tasks". As claim 141 depends on Claim 112 and Tinnirello fails to disclose Claim 112 (no Rules, Delegation, declarative representation, etc), he cannot disclose the storing of that declarative representation. The Office Action's identification of a baseline view as such a store is flawed, since no description at all of the particular representation of the baseline view is given in Tinnirello. Furthermore, Tinnirello does not disclose any declarative and therefore non-procedural representation of anything for any purpose. Applicant's invention is not limited to software project management and Tinnirello suggest no other application of "baseline view".

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 142 further adds:
"the steps of
        organizing in a first business entity said declarative and therefore non-procedural representation of said dynamic process for conveyance to a second business entity, and,
        conveying said declarative and therefore non-procedural representation from the first business entity to the second business entity".
Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "project plan conveyed to various entities within and outside the organizations, as seen in the project communication structure." As claim 142 depends on Claim 112 and Tinnirello fails to disclose Claim 112 (no Rules, Delegation, declarative representation, etc), he cannot disclose the conveying of that declarative representation. The Office Action erroneously asserts that Tinnirello discloses entities outside the organization on pg 101. The Office Action's identification of a project plan being

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conveyed among the users of that plan as an example of conveying a declarative and therefore non-procedural representation of a dynamic process is flawed, since no description of the particular representation of the project plan is given in Tinnirello. Furthermore, Tinnirello fails to disclose any example of a declarative and therefore non-procedural representation.

Applicant's invention is not limited to software project management and Tinnirello suggest no other application of "project plan". Applicant respectfully emphasizes that a software project plan is far more predictable and standardized than a business process, and that even Tinnirello distinguishes between the project and process perspectives (p. 414).

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 143 further adds "wherein said declarative and therefore non-procedural representation of said dynamic process stores knowledge of at least one member of a set comprising organizational management, at least one model of business organization, at least one operational process, and at least one strategic process". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "executive level, project level and team level functions." Applicant cannot possibly infer the relevance of the Office Action's citation since it has nothing to do with a declarative representation, let alone a model of business organization, an operational process, or a strategic process. At best, Tinnirello discloses only a hierarchy limited to software project management and in the most general of terms. Tinnirello does not disclose, let alone differentiate between, operational process and strategic process. Tinnirello fails to disclose Rules, Delegation, declarative representation, and so on as per the response to Claim 112 and, further, the storing of that

declarative representation as found, defined, differentiated, and required in Applicant's claim and specification. Applicant respectfully emphasizes that Delegation has a specific definition in Applicant's invention and claims which is not the same as, nor compatible with, assignment of a resource (i.e., employee) as in Tinnirello.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 144 further adds:

"the steps of:

      retrieving at least a portion of said declarative and therefore non-procedural representation, and,

      instantiating said portion of said declarative and therefore non-procedural representation as a second dynamic process in a business".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "completion of sub-tasks related to the overall objective or goal", but provides no citation and Applicant cannot locate this phrase or its equivalent. Applicant finds the Office Action reference unintelligible in light of claim 144, since it does not relate to retrieval or instantiation of a declarative and therefore non-procedural representation of a dynamic process. Tinnirello fails to disclose declarative representation, and fails to disclose all the elements of independent Claim 112 (on which claim 144 depends) and, further, the storing and retrieving and subsequent instantiating of that declarative representation as a dynamic process in a business as found, defined, differentiated, and required in Applicant's claim and specification. Tinnirello fails to disclose anything that is either stored, retrieved, or instantiated.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 145 further adds "wherein the step of delegating to at least one specific Actor further comprises:

> a first Actor at a first level stating a plurality of business Rules comprising possible Conditions, each Condition comprising at least one member of a set comprising factual circumstance, market situation, business event, and Measurable Value, and joined with at least one corresponding desired Action matching a first measurable Goal;
> a second Actor at a second level identifying a Goal-achieving set of business Rules whereby said first measurable Goal may be attained;
> and;
> said second Actor communicating at least a first result of the Goal-achieving set of Rules to said first Actor".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "assigning resources to task/objectives, including executive-level, project level, team level, and analyst level, including communication structure" but Applicant cannot locate this phrase nor any phrase involving Delegation, let alone any phrase involving Delegation on the cited pages 5, 100-105. Tinnirello fails to disclose business Rules, first and second Actors, Delegation, Conditions comprising factual circumstances, market situation, business event, Measurable Value, an Action matching a measurable Goal, Actor, Goal-achieving Rules whereby a measurable Goal may be attained, and communication of a result of a Goal achieving set of Rules from the second Actor to the first Actor, all of which are taught, defined, differentiated, and required in Applicant's claim and specification. Applicant respectfully emphasizes that Actor (as contrasted with the rather limited

"employee"), Delegation (as contrasted with the rather limited "assignment of resources"), and Rule have specific definitions in Applicant's invention that are distinctly separate from Tinnirello's use of the non-equivalent terms cited here in the Office Action.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 146 further adds "wherein said plurality of business Rules are responsive to a plurality of events, and wherein the actual operation of the plurality of business Rules are combined to form a business process independent of any pre-existing definition of the business process". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "combination of tasks to complete a specific project objective or goal". Tinnirello does not disclose Rules. Furthermore, Tinnirello discloses that the combination of tasks required to complete a specific project objective is determined prior to project start and so are a pre-existing definition of the project, whereas Applicant's claim specifically excludes such pre-existing definitions: "the actual operation of the plurality of business Rules are combined to form a business process independent of any pre-existing definition of the business process." Indeed, the point of determining inter-task dependencies in advance of project start as disclosed by Tinnirello is so that the list of tasks can be understood as a defined project with predicted outcomes, not a business process with a dynamic pattern of operations.

Claim 147 further adds "wherein said measurable Goal is expressed as at least one Goal Rule comprising a Goal Condition which identifies said measurable Goal and a Goal Action which specifies any combination of the members of a measure set consisting of a measure of success, a measurement Constraint, and a measure of failure". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "post implementation review, pg 9, including a measurement program, pg 410". Tinnirello does not disclose Rules, let alone Goal Rules with a Condition and an Action, measurement Constraints, or Delegation. Furthermore, by definition, both a post implementation review and a measurement program are not a part of the project but, as clearly stated in Tinnirello, take place *after* the project is complete. Their purpose is to aid the organization with improving the next project. By contrast, Applicant's claim defines Elements that are intrinsic to the dynamic process. If Applicant's invention were applied to software project management, measures (for example) would determine not only what is done next but would be used to improve the current project as it progresses (rather than being evaluated after the fact).

Claim 148 further adds "wherein the first Actor further:

identifies the maximum acceptable risk associated with each Risky Rule in a first Risky Rule Set at the second level;

determines the risk associated with each Risky Rule; and,

for each Risky Rule in the first Risky Rule Set with risk that is not below the maximum acceptable risk associated with said Risky Rule, further refines Actions of each such Risky Rule by delegating its Actions as a Goal to a third Rule Set, and the third Rule Set is at a third level".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action cites "risk management, including risk analysis". As previously argued above (see previous comments about risk in the discussion of claims 117 and 131), Tinnirello does not disclose Rules, Rule Sets, or Actions, and so cannot disclose risk management or risk analysis using a rule-based method.

Claim 149 further adds "wherein the step of communicating further comprises stating at least one Rule having at least one Condition responsive to said desired Action and having

an Action that performs said step of communicating". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "task/objective dependency" but provides no cite to the prior art, and Applicant cannot find this phrase. Tinnirello fails to disclose Rule, communicating, or a Rule used to implement the step of communicating as found, defined, differentiated, and required in Applicant's claim and specification, and therefore cannot disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 150 further adds "wherein said first result is a qualitative measure of at least one member of a set of measurable properties comprising performance and Goal completion". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "goal/objective/task measurement." Applicant cannot find this phrase on the cited page 410 as it relates to qualitative measures. Tinnirello fails to disclose a first result, a qualitative measure, how that result is a qualitative measure, and how it measures performance and Goal completion as found, defined, differentiated, and required in Applicant's claim and specification.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 151 further adds "wherein said first Actor effects Delegation to at least one subordinate Actor any combination of any number of the members of a Delegation set consisting of responsibility, accountability, and authority that belong to the first Actor".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "executive level function, including delegation" but Applicant cannot locate Delegation in the context of executive level function on the cited pages 100-101. Furthermore, Applicant clearly differentiates Delegation from assignment. Tinnirello does not disclose Delegation as defined by Applicant's claim and specification, where is it differentiated from assignment. Tinnirello fails to disclose 'Rules', 'Delegation', 'Actor', 'a subordinate Actor different from the first Actor', 'responsibility', 'accountability', and 'authority' as found, defined, differentiated, and required in Applicant's Claim 112, 145, and 151 and in Applicant's specification. Applicant respectfully emphasizes that 'Actor' has a specific definition in Applicant's invention which is not limited to employees.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 152 further adds "wherein said first Actor further effects Delegation by a Delegation Rule comprising at least one Delegation Condition which tests the appropriateness of achieving said desired Action and at least one Action which identifies at least one Actor as recipient of said Delegation". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "Delegation based upon resource availability" but Applicant cannot locate this phrase nor any phrase involving Delegation, let alone any phrase involving Delegation according to a Rule, on the cited page 100. Tinnirello fails to disclose 'Rules', 'Delegation', 'Delegation Rule', 'Actor', 'a subordinate Actor different from the first Actor', 'responsibility', 'accountability', and 'authority' as found, defined, differentiated, and required in Applicant's claim and

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specification. Applicant emphasizes that both 'Actor' and 'Rule' have specific definitions in Applicant's invention.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 153 further adds "wherein the Delegation Rule delegates authority by at least one member of a set comprising establishing at least one Rule Set, modifying at least one Rule Set, and deleting at least one Rule Set". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "executive level delegation to project level members" but provides no citation and Applicant cannot locate. Tinnirello fails to disclose any such phrase, let alone 'Rules', 'a Rule Set', 'Delegation', 'Delegation Rule', 'Delegation Condition', 'Delegation Action', and 'delegating via the Action of a Delegation Rule to establish, modify, or delete a Rule Set' as found, defined, differentiated, and required in Applicant's claim and specification.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 154 further adds "wherein the first Actor delegates authority by at least one member of a set comprising establishing at least one Rule Set, modifying at least one Rule Set, and deleting at least one Rule Set". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "project level delegation to team level members" but provides no citation. Applicant cannot locate these phrases involving Delegation. Tinnirello fails to disclose any such phrase, let alone 'Rules', 'Actor', 'a Rule

Set', 'Delegation', 'Delegation Rule', 'Delegation of authority', 'Delegation Condition', 'Delegation Action', and 'delegating via the Action of a Delegation Rule to establish, modify, or delete a Rule Set' as found, defined, differentiated, and required in Applicant's claim and specification.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 155 further adds "wherein said Delegation of accountability is accomplished by enabling at least one member of a set, comprising said second Actor and said second Rule, to alter at least one member of a set comprising measurement of predefined success and measurement process". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "project level functions, including project management" on the pages 103-104. Applicant cannot infer the relevance of this phrase. Tinnirello fails to disclose 'at least a first and a second Rule', 'Actors', 'Delegation', and 'the second Rule altering a measurement of predefined success and altering a measurement process' as found, defined, differentiated, and required in Applicant's claim and specification. Applicant respectfully emphasizes that Actor and Delegation have a specific definition in Applicant's invention and claims which are distinct from Tinnirello.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 156 further adds "identifying a second Actor according to a Goal stated as a set of requirements Rules and a set of requirements Constraints, and according to measurements

stated as a set of capabilities Rules". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "assigning tasks/objectives to analysts and doers based on expertise" but Applicant cannot locate these phrase on the cited pages 106-107. If anything, Tinnirello at p.106 states that "diffusing responsibility for essential functions among several subordinate teams" is a pitfall, thereby teaching *in the most general terms* **against** Applicant's claims regarding Delegation of responsibility...while simultaneously failing to describe any method at all for doing same! Tinnirello advises, again in the most general terms, that specialized skills should not be ignored when assigning individuals as resources, but Applicant cannot find any disclosure in Tinnirello by which such assignment is to be done using Rules. Rather, the assignment decision is at best the result of an unspecified, ad hoc, and only slightly constrained mental process. Furthermore, assignment of an employee (i.e., a resource) as defined in Tinnirello is obviously distinct from Applicant's invention and specific method in which an Actor (not limited to an employee as in Tinnirello) is characterized by measurements stated as a set of capabilities Rules, and a Goal stated as a set of requirements Rules and a set of requirements Constraints.

Tinnirello fails to disclose Rules, capabilities Rules, requirements Rules, requirements Constraints, Actor, and identification of said Actor as found, defined, differentiated, and required in Applicant's claim and specification. Applicant reminds Office Action that Actor has a specific definition in Applicant's invention which is not limited to employees as in Tinnirello.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 157 further adds "wherein each requirement Rule in said set of requirements Rules comprises both:

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at least one requirements Condition identifying at least one member of a set comprising the desired Action and at least one capability required to accomplish said desired Action; and,

at least one requirements Action identifying at least one member of a set comprising at least one capability of said second Actor and said desired Action".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "project manger identification of resource able to complete task/objective" but provides no citation and Applicant cannot locate. Nonetheless, Tinnirello fails to disclose Rules, capabilities Rules, requirements Rules, requirements Condition, Actor, and identification of a second Actor's capability and the desired Action as found, defined, differentiated, and required in Applicant's claim and specification. Therefore, Tinnirello cannot disclose Applicant's claim. Applicant requests that Examiner reconsider this rejection, and if the claim is again rejected, Applicant requests Examiner to be specific as to the citation and definite as how terms in the cited reference read on terms in Applicant's claim.

Claim 158 further adds "wherein each capability Rule in said set of capabilities Rules consists of at least one member of a set comprising:

at least one capabilities Condition identifying at least one Actor and at least one capabilities Action identifying at least one capability of said Actor; and,

at least one capabilities Condition identifying at least one capability, and at least one capabilities Action identifying at least one Actor having said capability".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "determining resource capable of achieving Objective of the task" but provides no citation and Applicant cannot locate this phrase. Tinnirello fails to disclose Rules, capability Rules, capabilities Condition,

capability identified by said capabilities Conditions, Actor, capabilities Action, and Actor identified by said capabilities Action as having a capability as found, defined, differentiated, and required in Applicant's claim and specification. Therefore, Tinnirello cannot disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 159 further adds "a step of matching said second Actor with said desired Goal by at least one criteria for comparing at least one requirements Rule and at least one capabilities Rule". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "determining resource capable of achieving objective of a task" but provides no citation and Applicant cannot locate. Tinnirello fails to disclose Rules, capability Rules, capabilities Condition, capability identified by said capabilities Conditions, Actor, capabilities Action, Actor identified by said capabilities Action as having a capability, requirements Rules, and a criteria for comparing a requirements Rule and a capabilities Rule as found, defined, differentiated, and required in Applicant's claim and specification. Therefore, Tinnirello cannot disclose Applicant's claim.

Applicant requests that Examiner reconsider this rejection, and if the claim is again rejected, Applicant requests Examiner to be specific as to the citation and definite as how terms in the cited reference read on terms in Applicant's claim.

Claim 160 further adds "wherein said criteria is established using at least one member of a match set comprising a best fit match algorithm, a fuzzy match algorithm, an approximate match algorithm, and an exact match algorithm.". Again, in light of the

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novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "determining resource capable of achieving objective of a task, including scenario where resources are limited, allowing for less than exact match" but provides no citation and Applicant cannot locate the text intended by the Office Action. Tinnirello does not disclose any matching algorithms at all, let alone for matching objectives and requirements and capabilities. While it is obvious that available resources might not match planned resources in project management, Tinnirello discloses no consequence of this problem other than recomputing the implied planned project completion. Tinnirello fails to disclose Actor, requirements Rule, capabilities Rule, best fit match, fuzzy match, approximate match, and exact match as found, differentiated, and required in Applicant's claim and specification. Applicant respectfully emphasizes that 'best fit match', 'fuzzy match', 'approximate match', and 'exact match' are specific and well-known terms of art in the computer software sub-field of pattern matching.

Tinnirello fails to disclose Rules, capability Rules, capabilities Condition, capability identified by said capabilities Conditions, Actor, capabilities Action, Actor identified by said capabilities Action as having a capability, requirements Rules, and a criteria for comparing a requirements Rule and a capabilities Rule as found, defined, differentiated, and required in Applicant's claim and specification. Therefore, Tinnirello cannot disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 161 further adds:

"wherein the step of modifying at least one Element through the Action of at least a Rule whose Condition is triggered by at least one input from at least one real world event, further comprises:

> defining a first adaptation process comprising at least one adaptation Rule;
> constructing the adaptation Rule from a Third Rule and requiring in the adaptation Rule's Action at least one member of a set of Actions comprising Element creation, self-modification, feedback, contradiction resolution, conflict resolution, correction for failure, and decision making, each of which is not already any previously existing Rule's Action;
> satisfying the Condition of the adaptation Rule through an event; and,
> affecting at least one Element through the Action of the adaptation Rule".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action fails to provides any citation for 'at least one adaptive Rule'. The Office Action provides only a vague reference to "refinement of the project plan, wherein refinement affects project tasks/objectives and resources used." Tinnirello fails to disclose the referenced phrases on the cited page. Tinnirello fails to disclose Element, Rule, Condition, adaptation Rule, adaptation process, Element creation, self-modification, feedback, contradiction resolution, conflict resolution, correction for failure, decision making, an event that satisfies an adaptation Rule's Condition, and an Action of an adaptation Rule that affects an Element, each of which as found, defined, differentiated, and required in Applicant's claim and specification. Despite much effort, Applicant is unable to comprehend Office Action's reference. Applicant notes that refinement of a project plan is certainly not computer implementable as described by Tinnirello, but is the end response to a mental process without any defined components or process.

Claim 162 further adds "wherein said first adaptation process is independent of any external agent". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "internal review of project plan" but provides no citation and Applicant cannot locate. Tinnirello fails to disclose Rules, adaptation Rule, and adaptation process as found in and required by Applicant's claim and specification and therefore cannot disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 163 further adds "monitoring performance by and against specific metrics; wherein the Condition of the adaptive Rule is satisfied by performance deviations from the specific metrics; and the Action of the adaptive Rule is representative of at least one member of a set comprising business events, business measures, business decisions, business Rules, and business processes". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "evaluation of project performance" as found on page 391 of Tinnirello. However, the Office Action fails to provides any citation for an adaptive Rule. Tinnirello fails to disclose any adaptive Rules as found in, defined, and required by Applicant's claim and specification. Therefore, Tinnirello cannot disclose Applicant's claim.

Claim 164 further adds:
> "modifying, through the Action of at least one adaptation Rule, at least a first Changed Rule instantiated at a first level;
> effectively modifying through the first Changed Rule instantiated at a first level at least a first Goal of the first level; and

permitting but not requiring intervention from a higher level."

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "sub-tasks Goals/Objectives determined and accomplished at the analyst level, in order to accomplish larger Objective/Goals of superior tasks" but provides no citation. Tinnirello fails to disclose any Rules, sub-tasks, and levels as found in Applicant's claim and specification.

The Office Action fails to provide any cite in the prior art for an adaptive Rule. Tinnirello fails to disclose any adaptive Rules as found in, defined, and required by Applicant's claim and specification. Therefore, Tinnirello cannot disclose Applicant's claim.

Claim 165 further adds:

"continuously monitoring for at least one occurrence of the at least one real world event; and,

continuously modifying the Elements of the dynamic process, in response to the occurrence of the at least one real world event".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "continuous revision of the project plan, whereby tasks/Objective can be modified based on changing Conditions and/or resources", which Applicant cannot find in Tinnirello. Applicant pointed out above that Tinnirello's approach to evaluating project performance requires multiple steps that Applicant's invention does not require: gathering background information, constructing the matrix (which "step requires considerable planning to execute. Five people are key to successful execution: 1. Assessor. 2. Facilitator. 3. Subject matter experts. 4. Selected team members. 5. Scribe."), establishing guidelines, ranking the seven project management processes (assessment, leading, definition, planning, organizing, controlling, closure), ranking project Goals or Objectives, or the five high-level measures of success

for project planning processes to achieve a Goal. Although Tinnirello discloses that "It behooves management, therefore, to assess performance before and during the project – and the earlier the better," Tinnirello fails to disclose any method for producing any result of the approach described for evaluating project performance other than a report, with no method at all for modifying any aspect of the project, not even advice on doing so.

Tinnirello fails to disclose any adaptive Rules, continuous monitoring, or continuously modifying as found in, defined, and required by Applicant's claim and specification. Therefore, Tinnirello cannot disclose Applicant's claim.

Claim 166 further adds:
> "incorporating at least one member of a set of dynamic processes comprising creation, deletion, modification, and correction of both Objectives and Elements; linking the adaptation process to at least one member of the set of dynamic processes; and,
> modifying the Objectives and Elements by the adaptation process according to at least one member of a set comprising Conditions and Constraints".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "continuous revision of the project plan, whereby tasks/objective can be modified based on changing conditions and/or resources", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose any dynamic process that is linked to an adaptation process, modifying Objectives, modifying Elements (i.e., any of a Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable Value, or Delegation) according to either Conditions or Constraints, and fails to combine these as prescribed in Applicant's claim. Therefore Tinnirello cannot disclose Applicant's claim.

Claim 167 further adds:
"wherein the step of modifying at least one Element comprises:
> detecting a contradiction;

changing at least one Rule Set, further comprising:

identifying at least a first and second conflicting Rule; and,

resolving the contradiction by at least one member of a set comprising adding a new Constraint, altering a existing Constraint, adding a new Rule, altering at least one of the first and second conflicting Rules, and eliminating at least one of the first and second conflicting Rules; and,

logically differentiating the Actions of the first and second conflicting Rules".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., adding, removing, modifying tasks and/or objectives", which text Applicant cannot find in Tinnirello. Tinnirello fails to disclose Rules, conflicting Rules, contradictions, logical contradictions, or Rule Sets, let alone the claim steps of "detecting a contradiction", "changing at least one Rule Set", "identifying at least a first and second conflicting Rule", "resolving the contradiction", or any of "adding a new Constraint, altering an existing Constraint, adding a new Rule, altering at least one of the first and second conflicting Rules, and eliminating at least one of the first and second conflicting Rules". Office Action's assertion is incomprehensible as stated, without any foundation, and seeks intelligible clarification.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 168 further adds "reducing at least one operational latency in the dynamic process through the Action of the adaptation Rule". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., elimination or combination of a task", which text Applicant cannot find in Tinnirello. Tinnirello does not disclose

operational latency, or "reducing at least one operational latency in the dynamic process."
The Office Action misunderstands the term of art "operational latency" (in the dynamic
process), the meaning of which is specifically the delay between the end of an activity
and the start of a subsequent, dependent activity in a business process, which language
now appears in the claim. The Office Action fails to explain how "elimination or
combination of a task" reads on Applicant's claim language of "reducing operational
latency in the dynamic process" since elimination or combination of a task would modify
the dynamic process, not necessarily improve it.

Applicant requests reconsideration of this rejection, and if the claim is again rejected,
Applicant requests specific citation and description of and how terms in the cited
reference read on terms in Applicant's claim.

Claims 169-173 are discussed in the section addressing the rejections under 35 USC
§103, below.

Claim 174 further adds:
"wherein the step of constructing the adaptation Rule further comprises:

> stating the adaptation Rule's Condition to be satisfied when a first failure occurs;
> and.
> stating the adaptation Rule's Action to both incorporate a modification of at least
> one Element and effect a correction for the first failure".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is
entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., task/objective not completed,
wherein goal/objective must be modified", which Applicant cannot find in Tinnirello.
Tinnirello fails to disclose the modification of a Goal or Objective in response to a task or
Objective not being completed, Rules, adaptation Rule, or the step of "modifying at least
one Element." Applicant respectfully reminds Office Action that Element has a well-
defined meaning in the specification and that Applicant's invention is not limited to the

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narrow and strained interpretation by Office Action of Tinnirello *ex post facto* and in light of Applicant's invention. Therefore, Tinnirello cannot disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 175 further adds "wherein the first failure comprises not attaining a first Goal and the modification of at least one Element enables the first Goal to be attained by correcting at least one member of a set comprising at least one cause of the first failure and at least one effect of the first failure". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., determining the effect of not completing the task/objective and how it affects the subsequent/successor tasks and objectives", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose "not attaining a first Goal", "the modification of at least one Element", enabling "the first Goal to be attained by correction at least one member of a set comprising at least one cause of the first failure and at least one effect of the first failure," correcting either a cause or an effect of a failure, or an adaptation Rule in Tinnirello the Condition of which is satisfied by a first failure. Therefore, Tinnirello cannot disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 176 further adds "wherein the modification of at least one Element includes at least one member of a set of steps comprising creating, modifying, and deleting a second adaptation Rule". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

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The Office Action provides only a vague reference to "e.g., creation or modification of a current or subsequent task", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose the phrase or its equivalent. Tinnirello fails to disclose "the modification of at least one Element", "at least one member of a set of steps comprising creating, modifying, and deleting a second adaptation Rule", a first adaptation Rule, and a second adaptation Rule as disclosed, defined, and found in Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 177 further adds "wherein the first failure comprises not detecting a Measurable Value and the modification of at least one Element comprises at least one member of a set comprising creating the Element, modifying the Element, and deleting the Element". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., creation and/or modification of a current or subsequent task", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose the phrase or its equivalent. Tinnirello fails to disclose "a first failure [that] comprises not detecting a Measurable Value", "the modification of at least one Element" (which, as discussed above, does not include "task" as in Tinnirello), "where that modification comprises at least one member of a set comprising creating the Element, modifying the Element, and deleting the Element", a first adaptation Rule, or a second adaptation Rule as disclosed and defined in Applicant's claim and specification.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 178 further adds "wherein a second failure comprises not attaining a second Goal and the modification of at least one Element includes the step of redeclaring and restating at least one Action of at least one Rule as a second dynamic process". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., modification of a task and/or Goal", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose the phrase or its equivalent. Tinnirello fails to disclose "a second failure not attaining a second Goal", "the modification of at least one Element" (which cannot be a task as in Tinnirello), "redeclaring and restating at least one Action of at least one Rule", and "a second dynamic process"? Since Tinnirello does not disclose the use of Rules, Tinnirello cannot disclose any Action of any Rule as constituting a second dynamic process. Therefore, Tinnirello cannot disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 179 further adds "wherein the first failure comprises not attaining a first Goal and the modification enables said first Goal to be attained by correcting at least one member of a failure set comprising at least a first cause of the first failure and at least a first effect of the first failure". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., modification of a task/Objective in order to meet the Goal", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose the phrase or its equivalent. Tinnirello fails to disclose Rules, "the first failure comprises not attaining a first Goal", or "modification enables first Goal to be attained by correcting" either a cause of the failure and an effect of the failure. Therefore, Tinnirello fails to disclose Applicant's claim.

Claim 180 further adds "wherein the adaptation Rule's Action modifies at least a member Rule of the Objective Rule Set and, when the member Rule's Condition is satisfied, the member Rule's Action modifies, without human intervention, at least a first member of the set of measurable Goalsn". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., project management software updating the progress of task completion and dependency", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose the phrase or its equivalent, and each of an adaptation Rule, the adaptation Rule's Condition, the adaptation Rule's Action, the satisfaction of that Action, that Action modifying a measurable Goal without human intervention. The Office Action fails to disclose any example of project management software, let alone a computer implemented method for managing a dynamic process, that updates the progress of task completion and dependency without human intervention. Therefore, Tinnirello fails to disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 181 further adds "wherein the adaptation Rule's Action modifies at least a first Adaptable Rule of a set of Rules and, when the first Adaptable Rule's Condition is satisfied, the first Adaptable Rule's Action modifies, without human intervention and without modification of any Rule of the Objective Rule Set, at least a first member of a set comprising subordinate Goals and measurable Goals". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., modification of sub-tasks based on overall task/Objective modification", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose the phrase or its equivalent. Tinnirello fails to disclose

Objective Rule Set, an adaptation Rule, the adaptation Rule's Condition, the adaptation

Rule's Action, the satisfaction of that Action, that Action modifying (without human

intervention and without modifying any Rule of the Objective Rule Set) a Goal, and that

Goal can be either a subordinate Goal or a measurable Goal. Applicant respectfully

reminds Examiner that each of Rule satisfaction, Objective Rule Set, adaptation Rule are

carefully defined in Applicant's claims and specification. Therefore, Tinnirello fails to

disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected,

Applicant requests specific citation and description of and how terms in the cited

reference read on terms in Applicant's claim.

Claim 182 further adds

"wherein the step of declaring and stating at least one Objective Rule Set further

comprises:

        stating at least a first Objective Rule Set and a second Objective Rule Set,

        wherein the first Objective Rule Set operates at a first level of the dynamic

        process and the second Objective Rule Set operates at a second level of the

        dynamic process;

        and wherein the adaptation Rule's Condition effectively defines the need for a

        closed loop effect in said first level and the adaptation Rule's Action changes at

        least one Element in said second level".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is

entirely foreign to Tinnirello.

The Office Action provides only a vague reference to "e.g., task interdependency, which

determines completion of Objectives", which Applicant cannot find in Tinnirello.

Tinnirello fails to disclose the phrase or its equivalent. Tinnirello fails to disclose

Objective Rule Set, a second Objective Rule Set, their respective and distinct levels of

operation, the dynamic process in which they operate, an adaptation Rule, that the

Condition of the adaptation Rule defines the need for a closed loop effect in the first

level, and the Action of the adaptation Rule changes at least one Element in the second level. Applicant respectfully reminds Examiner that Element has a specific meaning as defined in Applicant's specification and claims. Therefore, Tinnirello fails to disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 183 further adds "wherein the step of modifying at least one Element comprises modifying at least one member of a set comprising Goal, Rule, Rule Set, Condition, Action, Constraint, Measurable Value, and Delegation". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to the incomprehensible phrase "e.g., modification of a Goal based on task-interdependency modification", which Applicant cannot find in Tinnirello. Tinnirello fails to disclose the phrase or its equivalent. Tinnirello fails to disclose either adaptation Rules or Elements.

Therefore, Tinnirello fails to disclose Applicant's claim.

Claim 184 further adds
"wherein the step of declaring and stating at least one Objective Rule Set comprises stating at least a first Objective Rule Set and a second Objective Rule Set:
    wherein the first Objective Rule Set operates at a first level of the dynamic
    process and the second Objective Rule Set operates at a second level of the
    dynamic process; and,
    wherein a first Goal is associated with the first level and a second Goal is
    associated with the second level; and the first Goal and the second Goal overlap
    by having a subgoal in common".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to the phrase "e.g., task-interdependency", and Applicant cannot comprehend how "task-interdependency" relates to the claim language. Tinnirello fails to disclose first and second Objective Rule Sets and their respective and distinct levels of operation, first and second Goals associated with those respective levels, or how those Goals overlap (i.e., have a common subgoal). Applicant respectfully asserts to Office Action that overlap (let alone Goal overlap) does not have the same meaning or use as inter-dependency.

Therefore, Tinnirello fails to disclose Applicant's claim.

Claim 185 further adds "modifying the overlap to avoid at least one member of a set comprising confrontation problems and race-condition problems". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to the phrase "e.g., overlap of tasks", but Applicant cannot find the phrase in Tinnirello. Tinnirello fails to disclose Goal overlap, confrontation problems, or race-condition problems. Given the Office Action's response to Applicant's claim 103, which seems to equate "task-interdependency" with "overlap" of goals, Applicant finds it incomprehensible that the Office Action would now also equate "overlap of tasks" with "Goal overlap" as goals and tasks are clearly not the equated even in Tinnirello.

Therefore, Tinnirello fails to disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 186 further adds "wherein the step of declaring and stating at least one Objective Rule Set comprises stating at least a first Objective Rule Set and a second Objective Rule Set, wherein the first Objective Rule Set operates at a first level of the dynamic process and the second Objective Rule Set operates at a second level of the dynamic process, and further comprising an organizing Rule comprising:

    an organizing Condition; and

    an organizing Action;

and the organizing Condition is satisfied by the Condition of at least one Rule in said first Objective Rule Set and the organizing Action comprises at least the second Objective Rule Set".

Again, in light of the novelty of Claim 112 on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to the phrase "e.g., task inter-dependency, including relationship of successor and predecessor tasks", and Applicant cannot find the phrase in Tinnirello. Tinnirello fails to disclose Objective Rule Set, organizing Rule, adaptation Rule (constructed as per claim 161), first failure, modifying an Element, a Rule whose Condition is triggered by at least one input from at least one real world event, or the steps of Claim 112.

Therefore, Tinnirello fails to disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 187 further adds "wherein said organizing Action delegates at least one member of the set comprising a Rule Set, authority, accountability, and responsibility, and said organizing Rule creates a hierarchical Delegation". Again, in light of the novelty of

Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello. to Tinnirello.

The Office Action provides only a vague reference to the phrase "e.g., determination of resources, including delegation of executive level members to project level members", and Applicant cannot find the phrase or its equivalent in Tinnirello. Tinnirello fails to disclose Delegation of executive level members to project level members, especially in light of Applicant's careful definition of Delegation as "the assignment of responsibility, authority, and accountability for operational performance and reporting to an Actor, whether human or automated" (Applicant's specification, page 17). Furthermore, Tinnirello fails to disclose an organizing Action that delegates, Delegation of a Rule Set, Delegation of authority, Delegation of accountability, Delegation of responsibility, and a hierarchical Delegation.

Therefore, Tinnirello fails to disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 188 further adds "wherein the step of declaring and stating at least one Objective Rule Set further comprises stating at least a first Objective Rule Set and a second Objective Rule Set, wherein the first Objective Rule Set operates at a first level of the dynamic process and the second Objective Rule Set operates at a second level of the dynamic process, and wherein the response to at least one Action of at least one Rule in the first Rule Set becomes at least one Condition of at least one Rule in the second Rule Set". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to the phrase "e.g., sub-tasks with related task inter-dependencies, that affect the overall task and Objective, including

superior inter-dependencies", and Applicant cannot find the phrase or its equivalent in Tinnirello. Tinnirello fails to disclose the first Rule Set, the response to at least one Action of at least one Rule in the first Rule Set, and how that Action becomes a Condition of at least one Rule in the second Rule Set.

Therefore, Tinnirello fails to disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 189 further adds "wherein the first level and the second level are identical, and at least one Rule in the first Rule Set receives at least one response of at least one Rule in the second Rule Set as its Condition". Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to the phrase "e.g., tasks may be redundant", and Applicant cannot find the phrase in Tinnirello. Tinnirello fails to disclose Rule, Rule Set, response, Condition, and "response of a Rule is the Condition of another Rule". Therefore, Tinnirello fails to disclose Applicant's claim.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claim 190 further adds
"further comprising:
        analyzing the business operations represented in said declarative and therefore
        non-procedural representation; and,
        refining and tuning at least one member of a set comprising Decision, Business
        Rule, and Business Process".

Again, in light of the novelty of Claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

The Office Action provides only a vague reference to the phrase "e.g., changing an Objective, which in turn changes the tasks and inter-dependencies", and Applicant cannot find the phrase in Tinnirello. Tinnirello fails to disclose Decision, Business Rule, Business Process, and how refining and tuning these. Therefore, Tinnirello fails to disclose Applicant's claim.

Applicant respectfully emphasizes that an 'Objective' is not an 'Objective Rule', as is clearly defined in Claim 112; rather, 'Objective Rules' are declared and stated for the purpose of accomplishing at least a part of an 'Objective'.

Applicant requests reconsideration of this rejection, and if the claim is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim.

Claims Rejections Under 35 USC §103

Remarks on Dependent Claims 88-92

The Office Action rejected dependent claims 88 to 92 on Tinnirello over Davis. Claims 88 to 92 have been replaced by new claims 169 to 173. Additionally, and as noted above, Claims 112 and 80, on which each of the rejected claims 88-92 depended, have been replaced by the new claims 112 and 161, respectively, so that new claims 169 to 173 depend on new claims 112 and 161. Applicant requests reconsideration of this rejection, as now applicable to claims 169 to 173, for the following reasons.

Applicant requests reconsideration of these rejections, as now applicable to claims 169 to 173, for the following reasons, each of which apply to each of the rejected claims:

1) The prior-art references (Tinnirello and Davis) do not contain any suggestion (express or implied) that they be combined, let alone that they be combined in the manner suggested by the Office Action

2) Each <u>reference is individually complete</u> and functional in itself, so there would be no reason to use parts from or add or substitute parts to any reference.

3) The <u>references take mutually exclusive paths</u> and reach different solutions to a similar problem. Since they teach away from each other, it would not be logical to combine them.

4) The <u>references themselves teach away</u> (expressly or by implication) from the suggested combination.

5) Those skilled in the art would find it physically <u>impossible to combine</u> the references (Tinnirello and Davis) in the manner suggested.

6) If combined, the references would produce an <u>inoperative combination.</u>

7) It would be necessary to make <u>modifications,</u> not taught in the prior art, in order to combine the references in the manner suggested.

8) Even if combined, the references would not meet the claims since <u>claims features would be lacking.</u>

9) The whole (that is, the result achieved by the invention) is greater than the sum of its parts (that is, the respective results of the individual references) through <u>synergism</u>.

10) The combination suggested requires a <u>multiplicity of separate, awkward combinative steps</u> that are too involved to be considered obvious.

Each of these reasons are explained in detail below.

The Prior-Art References (Tinnirello And Davis) Do Not Contain Any Suggestion (Express Or Implied) That They Be Combined, Let Alone That They Be Combined In The Manner Suggested By The Office Action

Neither Tinnirello nor Davis cite the other. The cited passage in Davis is not concerned with project management, and the mere existence of uncited, common subject matter elsewhere in an encyclopedic compendium (i.e., Davis) does not motivate combination. The fact that Davis contains a large number (at least eight) independent subjects as evidenced by the fact that they are introduced as separate, independent, and individually complete parts of the reference, mitigates against combining Davis with yet another, external, reference. There is no guidance in Davis or Tinnirello to seek out the cited passage in Davis and, if found, no reason to combine it with project management. A practitioner would not be motivated to combine any part of Davis with Tinnirello except perhaps Part III entitled "Project planning and project management", yet even this combination is only weakly and not-explicitly motivated since Davis does not reference Tinnirello and Tinnirello does not reference Davis.

There is no suggestion in the cited passage of Davis, in the encompassing Chapter 7 entitled "Expert systems analysis and design", or anywhere in Davis, nor is there any suggestion in Tinnirello that motivates combination with Tinnirello in the manner suggested by the Office Action While both Davis and Tinnirello contain material relating to project management, the cited passage in Davis does not.

Neither Davis nor Tinnirello disclose using a computer implementation of Rules for project management, and neither Davis nor Tinnirello provide any suggestion that either the principles of project management discussed or any project management software, can be implemented as an expert system per Davis. Furthermore, the cited passage in Davis pertains to "Principles" of Information System Design and Analysis and Tinnirello pertains to IS project management, none of which is the subject matter of Applicant's invention, namely "a computer implemented business method for managing a dynamic process" (not project management).

The Office Action fails to disclose any specific manner of combination of Tinnirello and Davis, merely making an overly broad statement that "include re-formalization of key concepts, based on contradiction in Tinnirello, as seen in Davis et al, as an effective means of determining contradictions and modifying rules as a result, thereby making the project management in Tinnirello more flexible and robust." However, the Office Action misrepresents both Tinnirello and Davis in justifying this alleged motivation. Neither Tinnirello nor Davis disclose any logical contradiction or any use of a Rule to detect logical contradictions, logical conflicts, or conflicting Elements as disclosed in Applicant's specification and in the rejected claims.

As acknowledged in the Office Action, Tinnirello does not "explicitly disclose the adaptation Rule...". Neither Davis nor Tinnirello disclose the construction of adaptation Rules as defined and disclosed in Applicant's new claim 161, on which each of claims 169 to 173 depend. Without disclosure of adaptation Rules by at least one of Davis or Tinnirello, the suggested combination is impossible.

Finally, the subject of Applicant's invention is management of a dynamic process and the suggested combination depends on project management. However, both Tinnirello (p. 414) and Davis (p. 715-716) differentiate between process and project, and the Office Action offers no motivation to overcome such differentiation.

Each <u>Reference Is Individually Complete</u> And Functional In Itself, So There Would Be No Reason To Use Parts From Or Add Or Substitute Parts To Any Reference.

Tinnirello is a complete reference on project management. Davis is a complete, and in fact encyclopedic compendium, reference on the broader subject of IS systems design and analysis. Each provides sufficient information to be functional with respect to their specific subjects, although neither reference provides the implementation detail of any particular computer system. Neither reference suggests outstanding problems or unsolved issues that would provide any reason to use parts from, or add or substitute parts to, any reference.

The <u>References Take Mutually Exclusive Paths</u> And Reach Different Solutions To A Similar Problem. Since They Teach Away From Each Other, It Would Not Be Logical To Combine Them.

The cited passages are mutually exclusive paths. Tinnirello discloses IS project management that tracks and monitors project status, but with no provision for automatically executing any task. Davis discloses expert system analysis and design, but nowhere discloses using an expert system for project management, let alone any way to combine these references. Project management as disclosed by Tinnirello depends upon human intervention at almost every step: determining inter-task dependencies, estimating task durations, updating status, performing assessments, and so on.

There is no suggestion in either reference that any step of project management could or should be reduced to rules as in Davis, let alone the specific combination of Elements as disclosed by Applicant. Davis notes (p. 52) that the design phase for expert systems is different from traditional methodologies, in part because expert systems require almost constant design revision. Therefore, while Davis takes a path in which the analysis and design methodology for expert systems leads to a purely automated rule-based expert system which is <u>devoid of human intervention</u>, Tinnirello takes a path in which traditional project planning and tracking are used for traditional project management which <u>depends on human intervention</u>.

The <u>References Themselves Teach Away</u> (Expressly Or By Implication) From The Suggested Combination.

Davis teaches the analysis and design methodology for expert systems leads to a purely automated rule-based expert system which is <u>devoid of human intervention</u>. The Office Action misrepresents re-formalization in Davis, since this human activity is a step in the methodology, is not implemented with rules, and is not implemented in the expert system (using rules) that results from the methodology. Tinnirello teaches traditional project planning and tracking which <u>depends on human intervention for</u> project management.

Davis notes (p. 52) that the design phase for expert systems is different from the methodologies used to develop traditional information systems (such as those which Tinnirello's project management plans and monitors), in part because expert systems require almost constant design revision, a step which Tinnirello does not address.

For each of the above reasons, the references teach away from the suggested combination.

The References Are From Very Different Fields Than That Of The Invention, And So Is "<u>Nonanalogous Art</u>."

As noted above, Tinnirello discloses a method of project management which is a very different field than that of Applicant's invention: a computer implemented business method for managing a dynamic process. Tinnirello (p. 414) differentiates between project and process and therefore is nonanalogous art.

Davis (p. 51) discloses a method for expert system analysis and design which is a very different field than that of Applicant's invention: a computer implemented business method for managing a dynamic process. Thus, Davis is nonanalogous art as well.

Those Skilled In The Art Would Find It Physically <u>Impossible To Combine</u> The References (Tinnirello And Davis) In The Manner Suggested.

The Office Action offers no specific suggestion as to how to combine Tinnirello and Davis. The Office Action suggest making the combination of Tinnirello and Davis "to include re-formulation of key concepts, based on contradiction in Tinnirello, as seen in Davis and modifying rules as a result." No specific citations are provided in the Office Action for any element of this suggestion except "re-formulation." Neither Davis nor Tinnirello disclose nor any way to use rules as in the expert systems of Davis, to manage and execute a dynamic process having a dynamic pattern of operations. As neither Davis nor Tinnirello mention contradiction, conflicting Elements, any method for addressing them, there point of commonality among the references alleged by the Office Action suggested combination does not exist, and those skilled in the art would find it physically impossible to combine the references in the manner suggested.

If Combined, The References Would Produce An <u>Inoperative Combination</u>.

Tinnirello does not disclose Rules as in Applicant's invention and claims, and even the Office Action acknowledges that Tinnirello does not disclose all the elements of Claims 169 to 173. Without Rules to provide a common ground for integration of Davis and Tinnirello, and without the elements of Claims 169 to 173, the references would produce an inoperative combination.

Although the Office Action does not provide any description of how the combination of Davis and Tinnirello should be combined or to what purpose other than "making the project management in Tinnirello more flexible and robust", there appear to be two aspects of Davis which might be proposed for combination with Tinnirello's project management: (1) the methodology Davis discloses for expert system analysis and design (which is not rule-based) and (2) an expert system. The first combination would be inoperative because the methodologies are incompatible and have no obvious integration: Tinnirello discloses tasks that are distinct from the phases disclosed by Davis, and Davis discloses refinement, reformalization, and redesign which are missing from Tinnirello. The second combination would be inoperative because an expert system as in Davis "is a

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computer program that emulates the thought process of human expert" while project management as in Tinnirello is used for project planning and monitoring. Such a combination might provide more flexible and robust project management, but could not involve reformalizing key concepts because this is part of the Davis methodology and not part of the expert system produced by that methodology. Without reformalization, the Office Action's asserted combination becomes inoperative.

It Would Be Necessary To Make <u>Modifications</u>, Not Taught In The Prior Art, In Order To Combine The References In The Manner Suggested.

Neither Davis nor Tinnirello, nor any other prior art, teaches the specific combination of Elements, Rules, Rule Sets, Objectives, adaptive Rules, Rules that modify Elements, stating and declaring, delegating, determining, modifying, and executing as found in Applicant's claims. It would be necessary to introduce these combinations into any combination of Davis and Tinnirello in order to combine the references in the manner suggested by the Office Action

Even If Combined, The References Would Not Meet The Claims Since <u>Claims Features Would Be Lacking</u>.

Neither Davis nor Tinnirello, nor any other prior art, teaches the specific combination of Elements, Rules, Rule Sets, Objectives, adaptive Rules, Rules that modify Elements, stating and declaring, delegating, determining, modifying, and executing as found in Applicant's claims. As a result, claims features would be lacking in any combination of Davis and Tinnirello including the ability to use the method to implement a dynamic process with the features of hierarchical Delegation, an adaptive and self-modifying process, automatic resolution of contradictory Rules or of conflicting Conditions, and a dynamic pattern of operations.

The Whole (That Is, The Result Achieved By The Invention) Is Greater Than The Sum Of Its Parts (That Is, The Respective Results Of The Individual References) Through <u>Synergism</u>.

The combination of using a rule-based system and a declarative method for business management are synergistic, because they enable results that cannot be achieved in the prior art by either project management tools or expert systems, given the specific way in which these arts must be combined. These include the ability to use the method to implement a dynamic process with the features of hierarchical Delegation, an adaptive and self-modifying process, automatic resolution of contradictory Rules or of conflicting Conditions, and a dynamic pattern of operations.

The Combination Suggested Requires A <u>Multiplicity Of Separate, Awkward Combinative Steps</u> That Are Too Involved To Be Considered Obvious.

The numerous details of Applicant's invention, involving multiple major steps, each with multiple substeps, comprise detailed combinative steps that are neither disclosed nor suggested in the prior art, and, for example, with respect to steps of delegating and modifying, are too involved to be considered obvious.

Tinnirello Fails to Disclose Independent Claim 112, And So Cannot Be Combined With Davis So As To Disclose The More Restrictive Dependent New Claims 169 to 173

These claims enable the computer implemented detection and resolution of logical contradictions and logical conflicts in the rule based implementation of a dynamic process having a dynamic pattern of operations and emergent behavior. Expert systems in the prior art which require design and testing to preclude, prior to implementation, logical contradictions and logical conflicts.

<u>This is important</u> because, unlike expert systems in the prior art, Applicant's invention permits self-modification and therefore the occurrence of new or even transiently existing Rules and other Elements which cannot be tested prior to implementation. Such Elements may be logically contradictory or logically conflicting, as is valuable in mirroring contradictions and conflicts in many real world problem domains. Without a method to automatically resolve them, the system would become non-functioning.

Claim 169 further adds "wherein the adaptation Rule's Condition is satisfied when a first contradiction occurs and the adaptation Rule's Action modifies at least one Element". Again, in light of the novelty of claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Neither Tinnirello nor Davis disclose adaptation Rules, nor any computer implemented method for detecting or handling a Contradiction within a dynamic process having a dynamic pattern of operations.

Claim 170 further adds "wherein the first contradiction comprises at least first and second logically-conflicting Elements, and the adaptation Rule's Action selects one of the conflicting Elements through at least one member of a set of selection techniques comprising random selection, deterministic selection, and arbitrary selection, and modifies the selected Element". Again, in light of the novelty of claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Neither Tinnirello nor Davis disclose adaptation Rules, nor any computer implemented method for detecting or handling a Contradiction within a dynamic process having a dynamic pattern of operations, let alone any techniques for selecting an Element.

Claim 171 further adds "wherein the modification of the selected Element prevents simultaneous application of the first and second logically-conflicting Elements". Again, in light of the novelty of claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Neither Tinnirello nor Davis disclose adaptation Rules, nor any computer implemented method for preventing logical conflict within a dynamic process having a dynamic pattern of operations.

Claim 172 further adds "wherein the first contradiction comprises at least first and second logically-conflicting Elements, and the adaptation Rule's Action alters at least one of the first and second logically-conflicting Elements and creates a differentiation between the first conflicting Rule's Condition and the second conflicting Rule's Condition, said differentiation preventing the first conflicting Rule's Condition and the second conflicting Rule's Condition from being satisfied by the same set of measurable inputs and Elements". Again, in light of the novelty of claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Neither Tinnirello nor Davis disclose adaptation Rules, nor any computer implemented method for resolving a logical conflict within a dynamic process having a dynamic pattern of operations, let alone by rule-based alteration of Elements to differentiate satisfaction of Conditions in conflicting Rules.

Claim 173 further adds "wherein the adaptation Rule's Action alters at least one of the first and second logically-conflicting Elements, modifies the first logically-conflicting Element, including a Constraint not present in the second logically-conflicting Element, and prevents the possibility of the first and second logically-conflicting Elements from simultaneously occurring". Again, in light of the novelty of claim 112 and on which this claim depends, this is entirely foreign to Tinnirello.

Neither Tinnirello nor Davis disclose adaptation Rules, nor any computer implemented method for resolving a logical conflict within a dynamic process having a dynamic pattern of operations, let alone by rule-based alteration of Elements to preclude simultaneous occurrence.

Applicant requests reconsideration of this rejection, and if any of these dependent claims is again rejected, Applicant requests specific citation and description of and how terms in the cited reference read on terms in Applicant's claim. Accordingly, Applicant submits that all the dependent claims are a fortiori patentable and should also be allowed.

Independent Claims 191 and 192

Office Action rejected independent claim 110, which Applicant has replace with claim 191. For the reasons cited above, Applicant believes that this claim is now allowable.

Office Action rejected independent claim 111, which Applicant has replaced as claim 192. It is the apparatus claim corresponding to the method Claim 112. Applicant submits that, as the rejection to Claim 112 has been overcome, apparatus claim 192 based on it should be allowed

Tinnirello Probably Is An Invalid Prior Art Reference

Applicant respectfully notes that Office Action cited as prior art Tinnirello et. al. However, while the copyright date on the copyright page of 1999 suggests that the entirety was available prior to Applicant's filing date of 1999 Dec 30, the first page of each of the chapters cited in the Office Action and provided by the PTO to the Applicant show a copyright date of 2000. For this reason, all rejections based on Tinnirello or on Tinnirello over Davis, based on 35 USC §102 are overcome. Nonetheless, Applicant has rewritten claims responsive to Office Action rejections, and has provided numerous reasons why each and every rejection is overcome independent of this evident invalidity as prior art.

Conclusion

For all of the above reasons, Applicant submits that the claims are now in proper form, and that the claims all define patentably over the prior art. Therefore Applicant submits that this application is now in condition for allowance, which action is respectfully solicited.
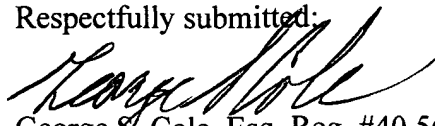
Conditional Request For Interview

Applicant has amended the claims of this application so that they are proper, definite, and define novel structure which is also unobvious. If, for any reason this application is not believed to be in full condition for allowance, Applicant respectfully requests an interview with the Examiner. Applicant requested such an interview prior to the Final Office Action but none was granted. Applicant believes that such an interview would be effective in resolving any remaining differences. Applicant concedes that he suffered considerable misinterpretation and confusion from prior interactions, which made the effective prosecution more difficult than it needed to have been, and that these ill effects probably could have been reduced or even eliminated had an interview been granted.

Applicant understands that the time for review and response to an application is limited and has attempted to ease the task by making specific, detailed, and directed references for each point, trading the extension of the text for a greatly reduced need to flip back and forth for reference comparisons.

It is hoped that this response will meet the concerns, address the limitations or misapprehensions, and identify the specific grounds for determination of the Applicant's right to continued prosecution, without necessitating such a change. If there are any questions concerning this case, please direct the inquiry to George S. Cole at (650) 322-7760 or GSCdLawyer@aol.com.

Respectfully submitted,

GSC/ms

George S. Cole, Esq. Reg. #40,563

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